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CATALOG

ELECTRONIC RESEARCH ASSOCIATES, INC.



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Dear Engineer:

Are you weary of juggling loose catalog sheets to satisfy your power supply requirements?

Here is your new ERA Catalog which is a complete, easy to use compilation of wide range supplies, slot modules, inverters, AC regulators, lab supplies and many more. This ERA catalog is completely revised with new models, latest pricing, availability, expanded technical data - in fact, everything you need to satisfy your requirements.

Please place this catalog on your bookshelf or in your reference file. If you require any additional information, there is a pre-paid card enclosed for your convenience.

Thank you.

ELECTRONIC RESEARCH
ASSOCIATES, INC.

Arnold J. Wasserman
Vice-President

NEW POWER SUPPLY DATA FROM ERA

The attached are new catalog supplements on ERA power supplies and accessory equipment. If you need more data or want a salesman to call, use the attached postage-paid card.

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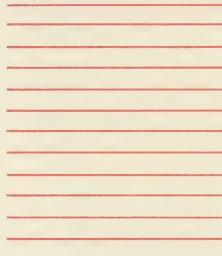
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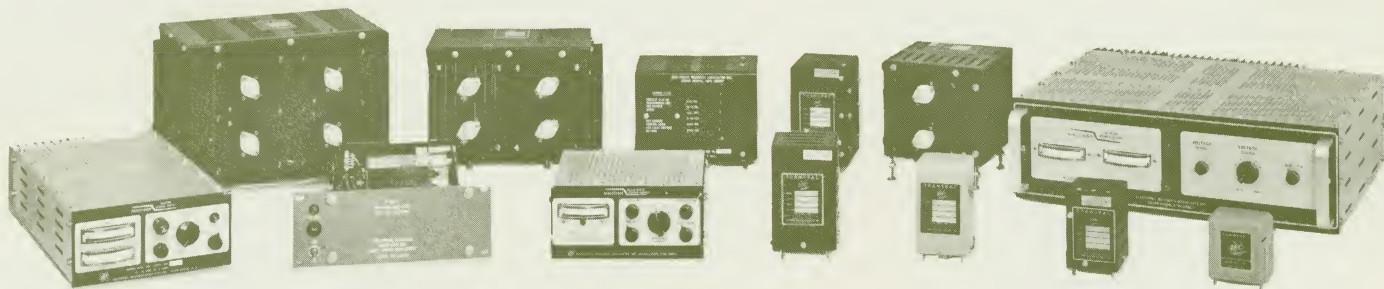
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ELECTRONIC RESEARCH ASSOCIATES, INC.

67 Sand Park Road, Cedar Grove, N. J. 07009 (201) 239-3000

SUBSIDIARIES: ERA Acoustics Corp. • ERA Dynamics Corp. • Astrocom Inc. • The Magitran Company

**MIL
SPEC**

Repairable Series Military Specifications DC Power Modules

75°CFREE AIR
RATING

**MEETS COMPONENT, WORKMANSHIP AND ENVIRONMENTAL REQUIREMENTS OF
MIL-E-4158, MIL-E-5400, MIL-E-16400, MIL-E-5272, MIL-T-21200**

Transpac MS Series DC Power Modules are all-silicon designs capable of meeting the highest military requirements. These units incorporate full MIL components where applicable and are designed to meet full military environmental and component specifications. Transformers are per MIL-T-27A, semiconductors are MIL-STD-701 or MIL-S-19500 preferred types. Tantalum foil capacitors per MIL-C-3965 are used throughout except in the

filter sections of higher current types where MIL-C-62 military grade electrolytic capacitors are used. These units have been fully tested to meet the component, workmanship, and environmental requirements of MIL-E-4158, MIL-E-5400, MIL-E-16400, MIL-E-5272, MIL-T-21200 and are supplied with an independent testing laboratory certification as to compliance for representative models.*

*Certificate of Conformity by Independent Laboratory supplied on request.

REGULATION 0.05%

- All-Silicon fully repairable militarized designs
- Full rating up to +75°C without external heat sinking or air blow

FEATURES

- Fast warm-up and stabilization time
- Less than 5 mv long-term stability
- Remote sensing
- Remote voltage control
- Automatic short circuit and transient protection
- Eliminates prototype costs
- Proven, tested designs

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OUTPUT VOLTAGE (DC)	CURRENT	RIPPLE (RMS)	SIZE W x D x H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
0-7VDC	0-500MA	800µV	3-5/16 x 4-3/16 x 5-1/2	4P	4.8	Solder Loop	MS07P5*	\$315.00
0-7VDC	0-1AMP	800µV	4 x 4-3/4 x 5-15/16	4R	6.1	Solder Loop	MS071*	\$355.00
0-7VDC	0-2AMP	800µV	5-3/4 x 7-3/16 x 5-1/4	5A	11.3	Terminal Block	MS072	\$395.00
0-7VDC	0-4AMP	800µV	6 x 8-15/16 x 6-5/16	5B	23.7	Terminal Block	MS074	\$455.00
0-7VDC	0-8AMP	800µV	6 x 10-5/16 x 6-5/16	5D	24.1	Terminal Block	FS078	\$595.00
0-10VDC	0-50MA	800µV	3 x 3 x 3-1/4	4S	1.6	Solder Loop	MS01P05*	\$220.00
10-20VDC	0-250MA	800µV	3-1/4 x 3-1/4 x 4-31/32	4V	3.9	Solder Loop	MS10P3*	\$285.00
11-12VDC	0-4AMP	800µV	6 x 8-15/16 x 6-5/16	5B	23.7	Terminal Block	MS124	\$455.00
11-12VDC	0-8AMP	800µV	6 x 10-5/16 x 6-5/16	5D	24.1	Terminal Block	MS128	\$595.00
11-13VDC	0-500MA	800µV	3-5/16 x 4-3/16 x 5-1/2	4P	4.8	Solder Loop	MS12P5*	\$315.00
11-13VDC	0-1AMP	800µV	4 x 4-3/4 x 5-15/16	4R	6.1	Solder Loop	MS121*	\$355.00
11-13VDC	0-2AMP	800µV	5-3/4 x 7-3/16 x 5-1/4	5A	11.2	Terminal Block	MS122	\$395.00
17-18VDC	0-4AMP	800µV	6 x 8-15/16 x 6-5/16	5B	23.7	Terminal Block	MS184	\$455.00
17-18VDC	0-8AMP	800µV	6-15/16 x 10-5/8 x 6-5/16	5F	24.8	Terminal Block	MS188	\$595.00
17-19VDC	0-500MA	800µV	3-5/16 x 4-3/16 x 5-1/2	4P	4.8	Solder Loop	MS18P5*	\$315.00
17-19VDC	0-1AMP	800µV	4 x 4-3/4 x 5-15/16	4R	6.1	Solder Loop	MS181*	\$355.00
17-19VDC	0-2AMP	800µV	5-3/4 x 7-3/16 x 5-1/4	5A	11.3	Terminal Block	MS182	\$395.00
20-30VDC	0-50MA	800µV	3 x 3 x 3-1/4	4S	1.6	Solder Loop	MS20P05*	\$220.00
20-30VDC	0-250MA	800µV	3-1/4 x 3-1/4 x 4-31/32	4V	3.9	Solder Loop	MS20P3*	\$285.00
23-24VDC	0-4AMP	800µV	6 x 8-15/16 x 6-5/16	5B	23.7	Terminal Block	MS244	\$455.00
23-24VDC	0-8AMP	800µV	6-15/16 x 10-5/8 x 6-5/16	5F	24.1	Terminal Block	MS248	\$595.00
23-25VDC	0-500MA	800µV	3-5/16 x 4-3/16 x 5-1/2	4P	4.8	Solder Loop	MS24P5*	\$315.00
23-25VDC	0-1AMP	800µV	4 x 4-3/4 x 5-15/16	4R	6.1	Solder Loop	MS241*	\$355.00
23-25VDC	0-2AMP	800µV	5-3/4 x 7-3/16 x 5-1/4	5A	11.3	Terminal Block	MS242	\$395.00
27-28VDC	0-4AMP	800µV	6 x 8-15/16 x 6-5/16	5B	23.7	Terminal Block	MS284	\$455.00
27-28VDC	0-8AMP	800µV	6-15/16 x 10-5/8 x 6-5/16	5F	24.1	Terminal Block	MS288	\$595.00
27-29VDC	0-500MA	800µV	3-5/16 x 4-3/16 x 5-1/2	4P	4.8	Solder Loop	MS28P5*	\$315.00
27-29VDC	0-1AMP	800µV	4 x 4-3/4 x 5-15/16	4R	6.1	Solder Loop	MS281*	\$355.00
27-29VDC	0-2AMP	800µV	5-3/4 x 7-3/16 x 5-1/4	5A	11.3	Terminal Block	MS282	\$395.00
30-40VDC	0-250MA	800µV	3-5/16 x 4-3/16 x 5-1/2	4P	4.8	Solder Loop	MS30P3	\$295.00
31-32VDC	0-4AMP	800µV	6-15/16 x 9-1/4 x 6-5/16	5G	23.9	Terminal Block	MS324	\$455.00
31-33VDC	0-500MA	800µV	3-5/16 x 4-3/16 x 5-1/2	4P	4.8	Solder Loop	MS32P5*	\$315.00
31-33VDC	0-1AMP	800µV	4 x 4-3/4 x 5-15/16	4R	6.1	Solder Loop	MS321*	\$355.00
40-50VDC	0-50MA	800µV	3-1/4 x 3-1/4 x 4-31/32	4T	3.9	Solder Loop	MS40P05*	\$235.00
40-50VDC	0-250MA	800µV	3-5/16 x 4-3/16 x 5-1/2	4P	4.8	Solder Loop	MS40P3*	\$295.00

†See Mechanical Data Pages 6, 7

*Full Tantalum Types

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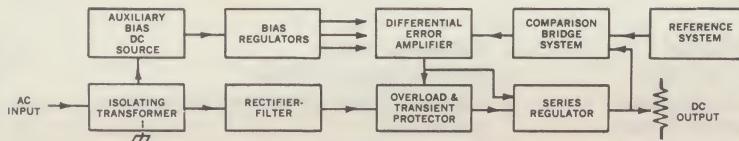
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OUTPUT VOLTAGE (DC)	CURRENT	RIPPLE (RMS)	SIZE W x D x H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
44-45VDC	0-4AMP	800µV	6-15/16 x 9-1/4 x 6-5/16	5G	23.9	Terminal Block	MS454	\$575.00
44-46VDC	0-500MA	800µV	4 x 4-3/4 x 5-15/16	4R	6.1	Solder Loop	MS45P5*	\$390.00
44-46VDC	0-1AMP	800µV	5-3/4 x 7-3/16 x 5-1/4	5A	11.3	Terminal Block	MS451	\$405.00
44-46VDC	0-2AMP	800µV	6 x 8-15/16 x 6-5/16	5B	23.7	Terminal Block	MS452	\$430.00
50-60VDC	0-50MA	0.005%	3-1/4 x 3-1/4 x 4-31/32	4T	3.9	Solder Loop	MS50P05*	\$235.00
50-60VDC	0-250MA	0.005%	3-5/16 x 4-3/16 x 5-1/2	4P	4.8	Solder Loop	MS50P3*	\$350.00
60-70VDC	0-100MA	0.005%	3-1/4 x 3-1/4 x 4-31/32	4T	3.9	Solder Loop	MS60P1*	\$330.00
70-80VDC	0-100MA	0.005%	3-1/4 x 3-1/4 x 4-31/32	4T	3.9	Solder Loop	MS70P1*	\$330.00
80-90VDC	0-100MA	0.005%	3-1/4 x 3-1/4 x 4-31/32	4T	3.9	Solder Loop	MS80P1*	\$330.00
90-100VDC	0-100MA	0.005%	3-1/4 x 3-1/4 x 4-31/32	4T	3.9	Solder Loop	MS90P1*	\$330.00
100-110VDC	0-100MA	0.005%	3-1/4 x 3-1/4 x 4-31/32	4T	3.9	Solder Loop	MS100P1*	\$330.00
150-160VDC	0-100MA	0.005%	5 x 5-3/4 x 6	4U	9.5	Solder Loop	MS150P1	\$395.00
200-210VDC	0-100MA	0.005%	5 x 5-3/4 x 6	4U	9.5	Solder Loop	MS200P1	\$395.00
250-260VDC	0-100MA	0.005%	5 x 5-3/4 x 6	4U	9.5	Solder Loop	MS250P1	\$395.00
300-310VDC	0-100MA	0.005%	5 x 5-3/4 x 6	4U	9.5	Solder Loop	MS300P1	\$395.00

†See Mechanical Data Page 7

*Full Tantalum Types



SPECIFICATIONS

Input: 103.5-126.5 VAC* 50-440 cps

Ripple: Less than 800 µV RMS ①

Line Regulation: Less than $\pm 0.01\%$ or 5 mv, whichever is greater, for full input change

Load Regulation: Less than 0.05% or 8 mv for 0-100% load change

Transient Response: Less than 50 µsec for step line or load change

Maximum Case Temperature: 115°C ②

Free Air Operating Temperature: -55°C to +75°C (full tantalum type), -40°C to +75°C (semi-tantalum type) full ratings, no external heat sinking ③

Temperature Coefficient: Less than 0.01% per degree C or 3 mv

Long Term Stability: Within 5 mv for 8 hours after 20 minute warm-up (line, load, temperature constant)

Interconnection: Series or parallel operation facilities

Voltage Adjustment: External screwdriver voltage control

Remote Voltage Control: Provision for external control of output voltage

Remote Sensing: Remote sensing facilities provided

Short Circuit Protection: Automatic short circuit protection and automatic recovery

Output Connection: Ungrounded outputs, either positive or negative terminals may be grounded

Transistor Types: MIL-STD-701, MIL-S-19500 ④

Military Specs: MIL-E-4158, MIL-E-5400, MIL-E-16400, MIL-E-5272, MIL-T-21200 where applicable

① Ripple — ripple factor of all models is less than 800 µV RMS except 50 VDC through 310 VDC models, where ripple is less than 0.005% RMS.

② Measured adjacent to power transistors.

③ Capacitor Types — models listed in table with asterisk incorporate MIL-C-3965 tantalum capacitance throughout (full tantalum types). Other models use MIL-C-3965 tantalum capacitances except in filtering and load output circuitry where MIL-C-62 electrolytics are used (semi-tantalum types). These models incorporating tantalum capacitances throughout can also be supplied on special order.

④ Transistor Types — models listed in the table utilize MIL-approved silicon transistors per MIL-S-19500 and MIL-STD-701. Modified units incorporating MIL-STD-701 transistors exclusively can also be supplied on order.

*Units up to 1 ampere are provided with external taps for 108-132 VAC input. Other models can be factory adjusted for 108-132 VAC input if specified on order.

**MIL
SPEC**

Encapsulated Series Military Specifications DC Power Modules



MILITARIZED DESIGNS FOR "TYPE APPROVAL" APPLICATIONS
MIL-E-4158, MIL-E-5400, MIL-E-5272, MIL-E-16400, MIL-T-21200

Transpac ME Series encapsulated DC Power Modules are designed for type-approved military applications. These low cost designs utilize all-silicon semiconductors in a premium mechanical design. The use of high-temperature epoxy encapsulant further enhances this mechanical stability and provides freedom from

the effects of humidity, explosive atmospheres and high altitudes. Units have been tested in accordance with the environmental requirements of MIL-E-4158, MIL-E-5400, MIL-E-16400, MIL-E-5272, MIL-T-21200 and a certified test report* is available for representative units.

*Certificate of Conformity by Independent Laboratory supplied on request.

REGULATION 0.05%

- Full rating up to 71°C without external heat sinking or air blow
- All-silicon semiconductor designs
- Fast warm-up and stabilization time
- Less than 5 mv long-term stability

FEATURES

- Remote sensing
- Remote voltage control
- Automatic short circuit and transient protection
- Eliminates prototype costs

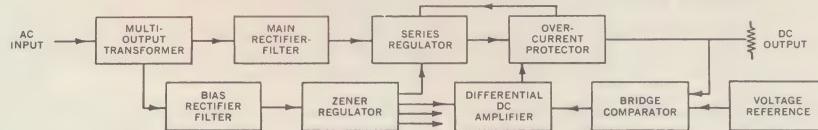
- Meets military environmental specifications
- "Off the shelf" delivery
- Precise electrical and physical specifications

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OUTPUT VOLTAGE (DC)	CURRENT	RIPPLE (RMS)	SIZE W x D x H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
0-10VDC	0-50MA	800μV	2-17/32 x 3-1/16 x 3-17/32	4A	2.1	Solder Loop	ME01P05	\$130.00
0-10VDC	0-250MA	800μV	2-5/8 x 3-1/16 x 4-1/2	4C	2.8	Solder Loop	ME10P3	\$145.00
5-7VDC	0-1AMP	800μV	3-1/4 x 4 x 5-15/16	4J	6	Solder Loop	ME61	\$170.00
5-7VDC	0-2AMP	800μV	4 x 4-11/16 x 5-15/16	4E	8.7	Solder Loop	ME62	\$205.00
5-10VDC	0-200MA	800μV	2-5/8 x 3-1/16 x 4-1/4	4F	2.9	Octal Plug	ME5P2	\$140.00
10-20VDC	0-50MA	800μV	2-17/32 x 3-1/16 x 3-17/32	4A	2.1	Solder Loop	ME10P05	\$130.00
10-20VDC	0-200MA	800μV	2-5/8 x 3-1/16 x 4-1/4	4F	2.9	Octal Plug	ME10P2	\$130.00
10-20VDC	0-250MA	800μV	2-5/8 x 3-1/16 x 4-1/2	4C	3.3	Solder Loop	ME20P3	\$140.00
11-13VDC	0-500MA	800μV	3-1/4 x 3-1/4 x 4-31/32	4H	3.8	Solder Loop	ME12P5	\$150.00
11-13VDC	0-1AMP	800μV	3-1/4 x 4 x 5-15/16	4J	6	Solder Loop	ME121	\$170.00
11-13VDC	0-2AMP	800μV	4 x 4-11/16 x 5-15/16	4E	8.8	Solder Loop	ME122	\$205.00
20-30VDC	0-50MA	800μV	2-17/32 x 3-1/16 x 3-17/32	4A	2.1	Solder Loop	ME20P05	\$120.00
20-30VDC	0-150MA	800μV	2-5/8 x 3-1/16 x 4-1/4	4F	3	Octal Plug	ME20P1	\$135.00
20-30VDC	0-250MA	800μV	3-1/4 x 3-1/4 x 4-31/32	4H	3.8	Solder Loop	ME30P3	\$140.00
23-25VDC	0-1AMP	800μV	3-1/4 x 4 x 5-15/16	4J	6.1	Solder Loop	ME241	\$180.00
23-25VDC	0-2AMP	800μV	4-1/4 x 5 x 6-15/16	4K	10.9	Solder Loop	ME242	\$210.00
27-29VDC	0-500MA	800μV	3-1/4 x 3-1/4 x 4-31/32	4H	3.9	Solder Loop	ME28P5	\$155.00
27-29VDC	0-1AMP	800μV	3-1/4 x 4 x 5-15/16	4J	6	Solder Loop	ME281	\$180.00
27-29VDC	0-2AMP	800μV	4-1/4 x 5 x 6-15/16	4K	10.9	Solder Loop	ME282	\$215.00
30-40VDC	0-50MA	800μV	2-5/8 x 3-1/16 x 4-1/4	4B	2.7	Solder Loop	ME30P05	\$130.00
30-40VDC	0-250MA	800μV	3-1/4 x 3-1/4 x 4-31/32	4H	3.8	Solder Loop	ME40P3	\$140.00
40-50VDC	0-250MA	800μV	3-1/4 x 3-1/4 x 4-31/32	4H	3.9	Solder Loop	ME50P3	\$140.00
44-46VDC	0-500MA	800μV	3-1/4 x 4 x 5-15/16	4J	6	Solder Loop	ME45P5	\$160.00
50-60VDC	0-50MA	0.005%	2-5/8 x 3-1/16 x 4-1/4	4B	3.3	Solder Loop	ME50P05	\$140.00
50-60VDC	0-150MA	0.005%	2-5/8 x 3-1/16 x 4-1/2	4G	3.5	Octal Plug	ME50P1	\$145.00
50-60VDC	0-250MA	0.005%	3-1/4 x 3-1/4 x 4-31/32	4H	4	Solder Loop	ME60P3	\$150.00
100-110VDC	0-100MA	0.005%	2-5/8 x 3-1/16 x 4-1/2	4G	3.7	Octal Plug	ME100P1	\$195.00

† See Mechanical Data Page 6

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SPECIFICATIONS

Input: 105-125 VAC, 50-440 cps**Ripple:** Less than 800 μ v RMS ①**Line Regulation:** Less than $\pm 0.01\%$ or 5 mv for full input change**Load Regulation:** Less than 0.05% or 8 mv for 0-100% load change**Transient Response:** Less than 50 μ sec for step line or load change**Maximum Case Temperature:** 110°C ②**Free Air Operating Temperature:** -20°C to +71°C**Temperature Coefficient:** Less than 0.01% per degree C or 3 mv**Long Term Stability:** Within 5 mv for 8 hours after 20 minute warm-up (line, load, temperature constant)**Output Connection:** Ungrounded outputs, either positive or negative terminals may be grounded**Voltage Adjustment:** External rheostat or resistor**Remote Sensing:** Remote sensing facilities provided**Short Circuit Protection:** Automatic short circuit protection and automatic recovery**Military Specs:** Meets environmental requirements of MIL-E-4158, MIL-E-5400, MIL-E-16400, MIL-E-5272, MIL-T-21200

① Ripple factor of all models is less than 800 μ v RMS except 50 VDC through 110 VDC models, where ripple is less than 0.005% RMS.

② Measured adjacent to power transistors

Standard Options Available—Applicable To All MIL Catalog Models

1. Non-Catalog Voltages (all models)

Units are available in any output voltage between listed ranges. Size and weight normally corresponds to next highest voltage standard model. Also, special voltages outside of catalog ranges can be supplied. Write for quotations.

2. Non-Catalog Current Ratings (all models)

Units can be supplied in special non-listed current ratings from microamperes to hundreds of amperes. Write for special quotation.

3. 400 CPS Input (all models)

Units are available for 400 cycle operation only, for weight saving applications. Case size same as listed types but with reduced weight. Write for quotations.

4. Three Phase Input (all models)

All units listed are available for operations from 3 phase, 3 or 4 wire, 60 or 400 cps. Write for quotations.

5. Transformer Type Housings (ME models only)

Encapsulated ME series units are available in MIL-T-27A cases as an alternative to encapsulation alone. Write for quotations.

6. MIL-STD-701 Transistors (MS Models only)

Use of MIL-STD-701 transistors in place of MIL-S-19500 types available for all MS series

models. Write for special quotations covering this modification.

7. Tantalum Capacitors (MS models only)

Models which use MIL-C-62 electrolytic capacitors can also be supplied with MIL-C-3965 tantalum capacitors as alternates. Write for special quotations.

8. Special Temperature coefficients (MS models only)

Catalog units can be supplied with special references and other circuit modifications which provide enhanced temperature coefficients. Write for special quotations covering your specifications.

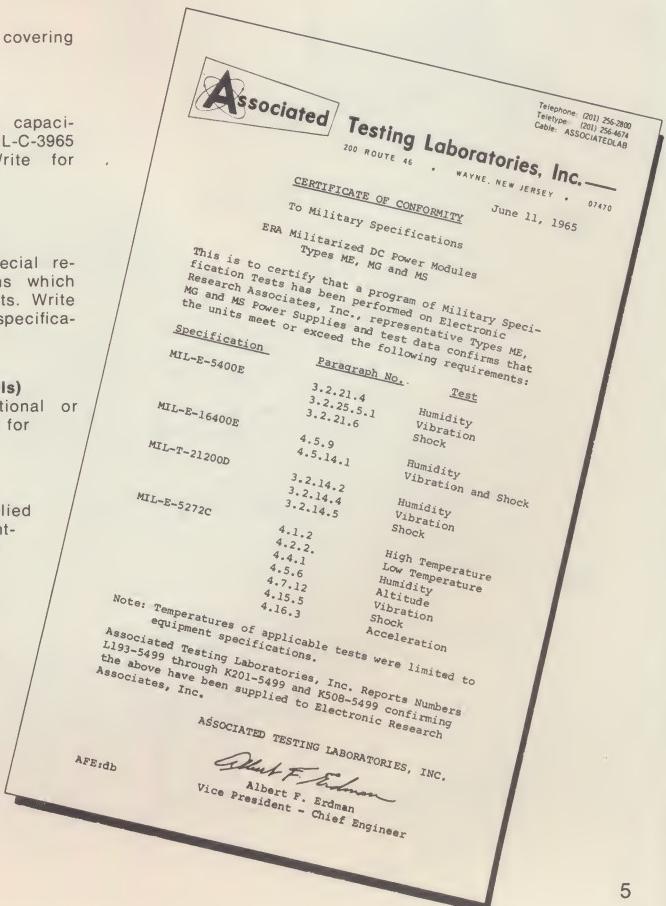
9. Special Military Requirements (all models)

Units can be provided to meet additional or modified Military Specifications. Write for quotations covering your requirements.

10. Special Packaging (all models)

Special chassis assemblies can be supplied to accommodate multiple module mounting. Also, individual units physically modified to meet special configurations. Write for quotations.

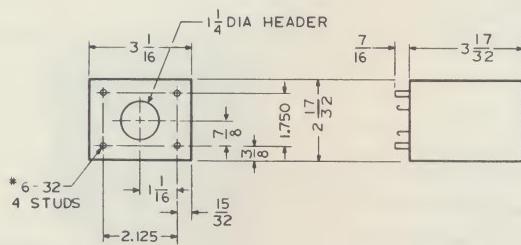
Certificate of conformity to military specifications is applicable to all ERA MIL Spec Power Modules (Types MS & ME).



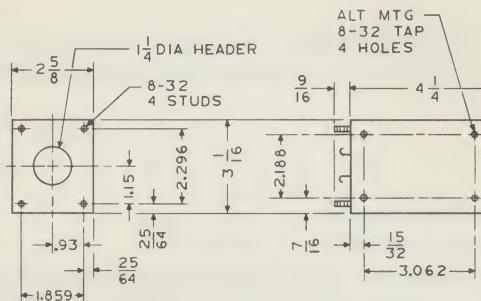
SIZE DATA

Mil Spec Modules — Connections & Size Data

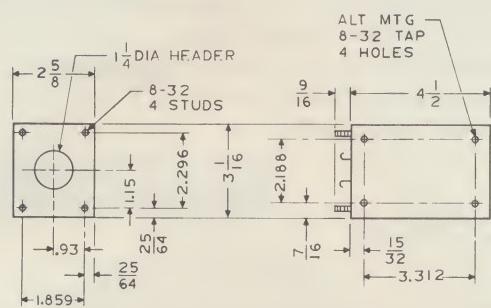
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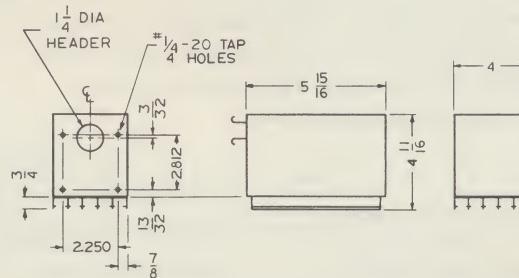
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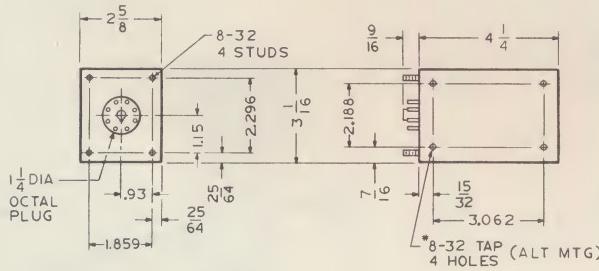
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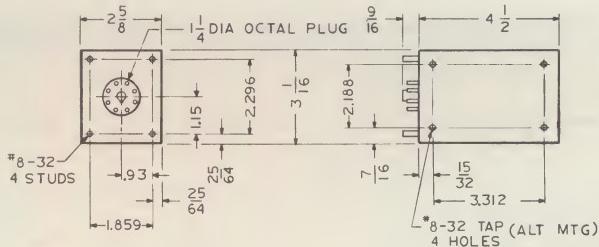
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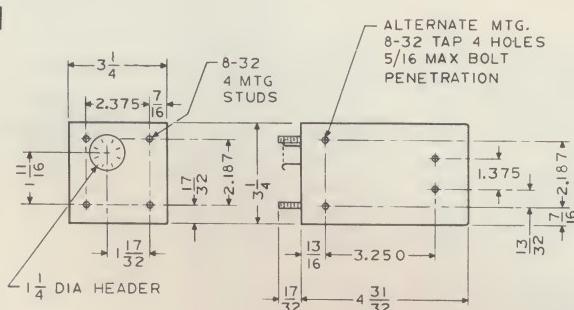
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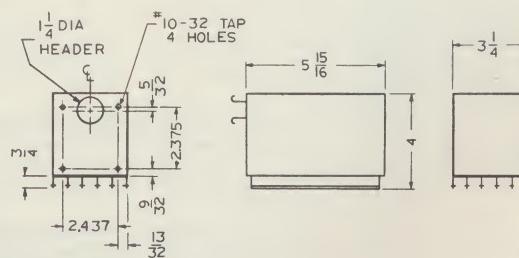
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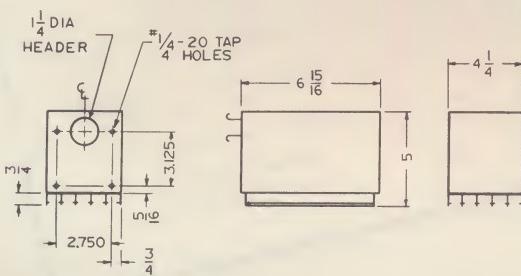
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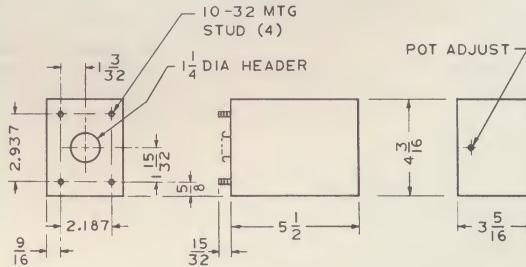
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4K

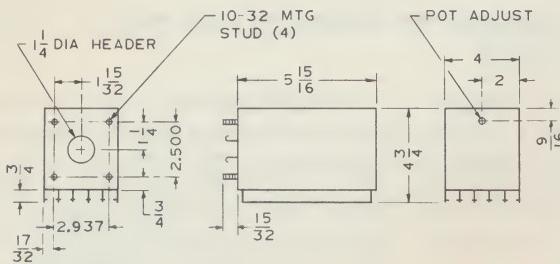


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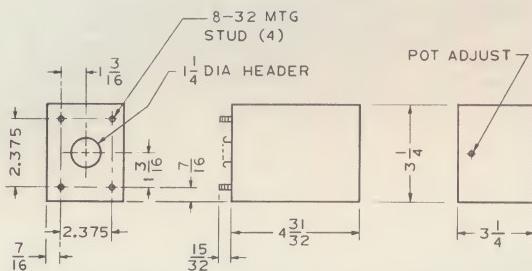


Tolerances Unless Otherwise Specified; **Fractions**; $\pm 1/16$ Decimals; $\pm .031$

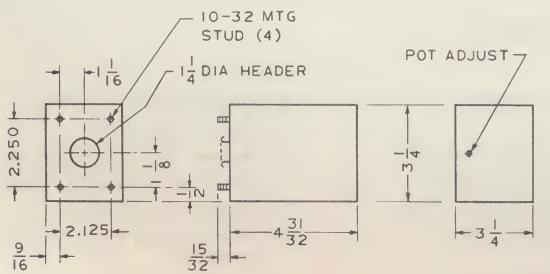
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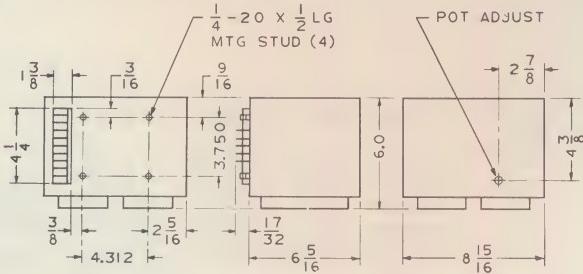
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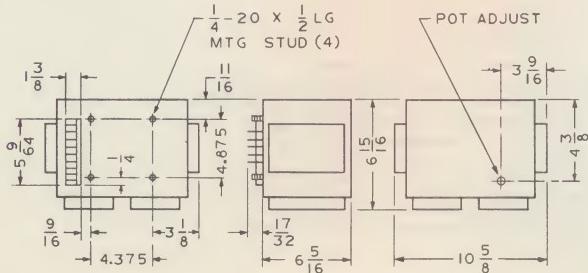
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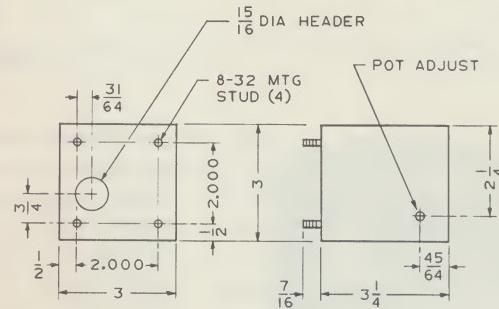
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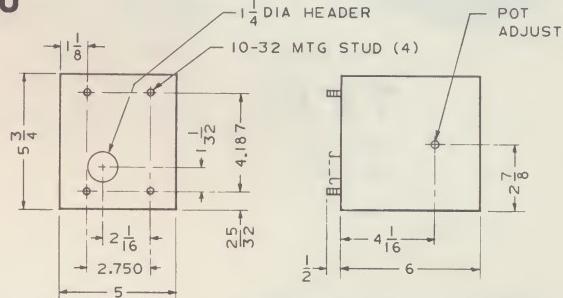
5F



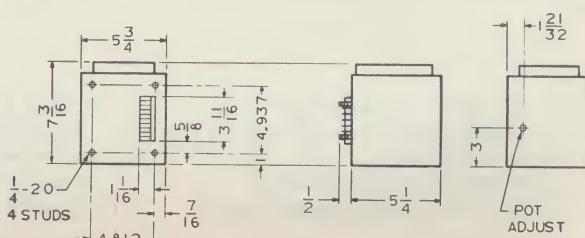
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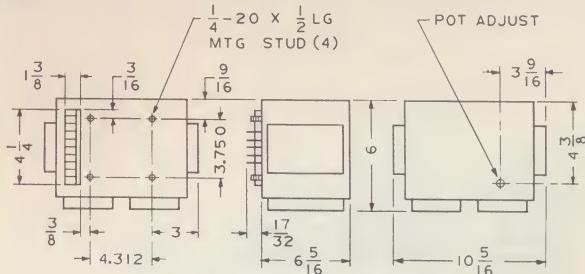
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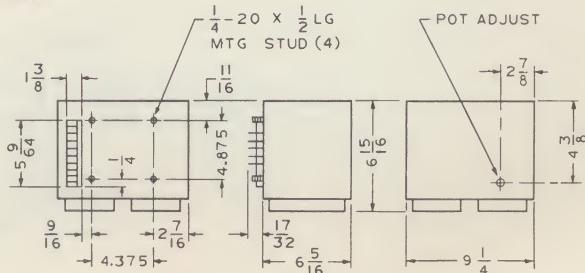
5A



5D

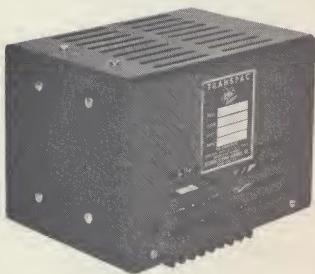


5G



**WIDE
RANGE**

Standard Series: Silicon Variable DC Power Modules



71°C
FREE AIR
RATING

WIDE-RANGE VARIABLE DC POWER AT LOW COST.

All units can be set to desired voltages by a simple adjustment and a single model can serve many voltage requirements. Stocking problems, spare part inventory are reduced to a minimum and power module obsolescence is practically eliminated.

All "LC" models are rated for full operation up to 71°C without heat-sinking or air blow and increased ratings are feasible at lower temperatures. These units can be externally adjusted to provide a wide range of output voltages by a simple tap change.

Transpac units are fully repairable and components are easily accessible for replacement or servicing. A conservative design approach provides maximum MTBF and reliability. Silicon semi-conductors are employed throughout including silicon rectifiers, differential amplifier and temperature compensated zener references. All models use transient-free circuitry and are fully protected against short circuits and overload with automatic recovery. Optional, built-in overvoltage protection is also available.

REGULATION 0.05%

FEATURES

- Low cost — exceptional value
- Single model serves all voltage requirements
- Solves stocking problems
- Eliminates design obsolescence
- All Silicon
- 71°C Free Air Rating
- No Heat Sinking or Air Blow Required
- Compact, Fully Repairable
- Wide Range Output Voltage Flexibility
- Automatic Over-Current Protection
- Over-Voltage Protection Option
- Fast Warm-Up Stabilization Time
- Less Than 5 MV Long Term Stability
- Temperature Coefficient Less Than 0.01% / °C
- Wide Input Range
- Programmable Output
- Remote Sensing
- Vernier Voltage Provision
- Series or Parallel Operation
- Ungrounded Outputs
- Short Circuit and Transient Protected
- "Worst Case" Specifications
- Enhanced Current Ratings at Lower Temperatures

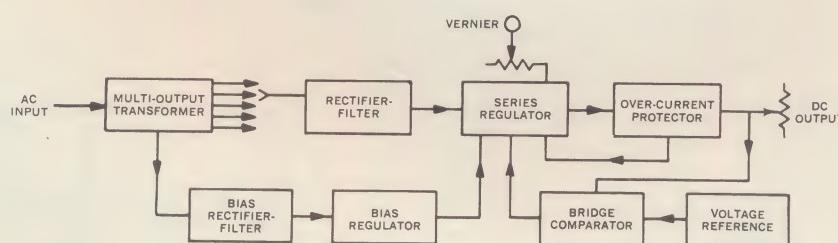
All
Listed Models
Avail. for
Immed.
Delivery

OUTPUT VOLTAGE (DC)	CURRENT (35°C)	SIZE W x D x H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
4-32VDC	0-1AMP*	4 x 4 x 6-1/2	8A	6.2	TERMINAL BOARD	LC32P7	\$ 95.00
4-32VDC	0-2.5AMP	5 x 5 x 7	8B	8.5	TERMINAL BOARD	LC322	\$120.00
4-32VDC	0-6.5AMP	6-3/4 x 8-1/2 x 7-1/4	8C	16.8	TERMINAL BOARD	LC325	\$189.00
4-32VDC	0-12.5AMP	8-3/4 x 9-1/2 x 7-1/2	8D	29.0	TERMINAL BOARD	LC3210	\$225.00
30-60VDC	0-1.25AMP	5 x 5 x 7	8B	8.5	TERMINAL BOARD	LC601	\$145.00

†See Mechanical Data Page 9

* Also available in 1.5 amp model, customer to specify

For Liberal
**QUANTITY
DISCOUNTS**
See Page 39



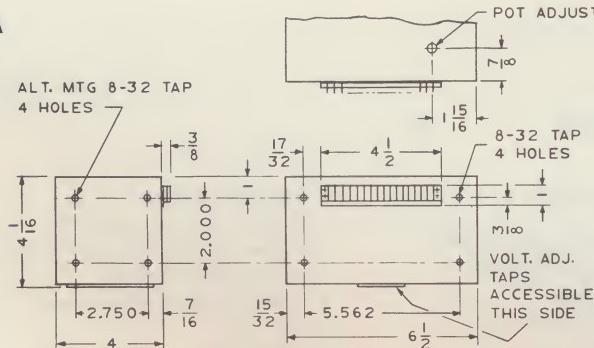
SPECIFICATIONS

Input: 105-125 VAC, 50-400 cps
DC Output: 4-32 VDC or 30-60 VDC (see table)
Regulator Type: Solid-state, all silicon semi-conductors
Ripple: Less than 800 microvolts RMS or .005%, whichever is greater
Line Regulation: Better than $\pm 0.01\%$ or 5 mv for full input change
Load Regulation: Better than 0.05% or 8 mv for 0-100% load change
Voltage Adjustment: Taps and screw driver adjustment
Remote Programming: 500 ohms/volts constant

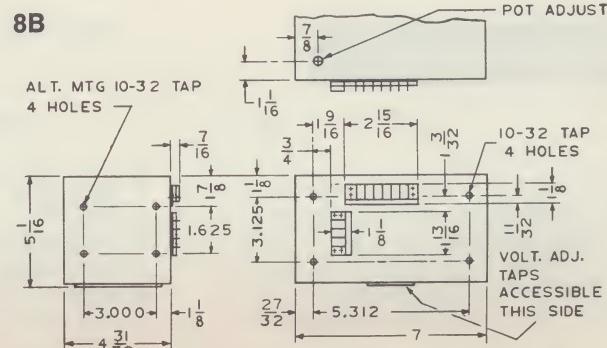
Vernier Voltage: External provision
Transient Response: Less than 50 micro-seconds
Operating Temperature: -20°C to + 71°C free air
Maximum Case Temperature: 130°C (measured adjacent to power transistor)
Temperature Coefficient: Less than 0.01% per degrees C or 3 millivolts
Long-Term Stability: Within 8 millivolts (8 hours reference)
Heat Sinking: Internal, convection cooled

Size Data

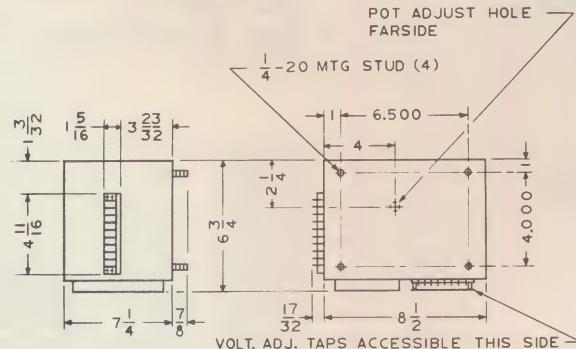
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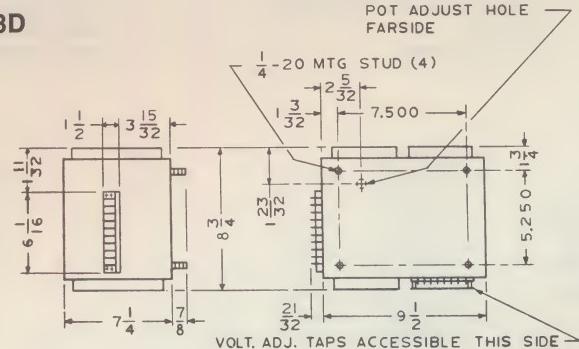
8B



8C



8D

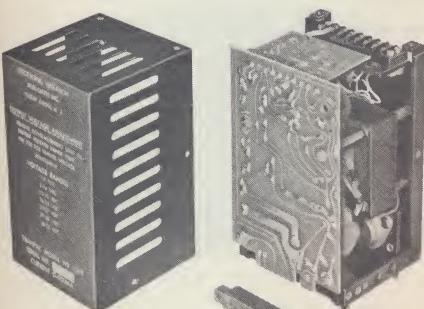


CURRENT RATING TABLE

MODEL	35°C	55°C	71°C
LC32P7	1 amp	1 amp	750 MA
LC322	2.5 amp	2.5 amp	2 amp
LC325	6.5 amp	6 amp	5 amp
LC3210	12.5 amp	11 amp	10 amp
LC601	1.25 amp	1.25 amp	1 amp

Ultra Compact Series: Silicon Variable DC Power Modules

WIDE RANGE MODULES FOR RELAY-RACK OR MULTIPLE MODULE ASSEMBLY



71°C
FREE AIR RATING

REGULATION 0.05%

The Transpac Ultra-Compact Series DC Power Modules are all-silicon, wide range DC power sources which permit a wide variety of requirements to be met in a single compact module. All models can be set to desired output voltage within their voltage range by a simple adjustment and thereby serve many voltage requirements. The small space occupied by each module also permits a common unit to be used interchangeably in applications where size is a limitation.

WR Series Transpacs can simplify stocking problems, provide design change flexibility, eliminate power module obsolescence and provide important purchas-

ing economies.

WR Transpac units are fully repairable and components are easily accessible for replacement or servicing. All units incorporate transient-free circuitry and are fully protected against short circuits and overload with automatic recovery.

Over-voltage protection is also available as an option. All models incorporate a unique method of mechanical design and internal heat sinking which permits operation up to 71°C without air blow or additional external heat sinks. Unique connector arrangement for low current models permits either solder connection or recessed plug-in operation.

FEATURES

- Small size, high performance
- Low cost-exceptional value
- Single model serves all voltage requirements
- Solves stocking problems
- Eliminates design obsolescence
- All-silicon
- 71°C free air rating
- No heat sinking or air blow required
- Fully repairable
- Wide range output voltage flexibility
- Automatic over-current protection
- Over-voltage protection option
- Remote programmable
- Fast warm-up and stabilization time
- Less than 5 MV long term stability
- Temperature coefficient less than 0.01% /°C
- Wide input range

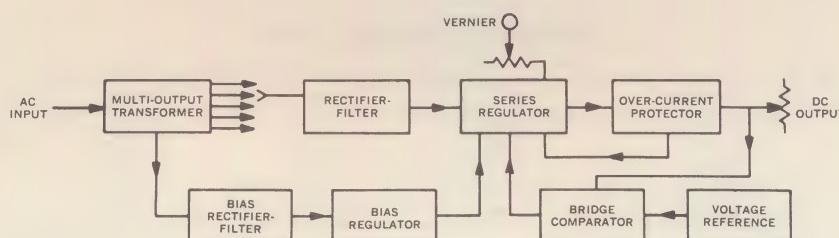
- Remote sensing
- Vernier voltage provision
- Series or parallel operation
- Ungrounded outputs
- Short circuit and transient protected
- "Worst case" specifications
- Enhanced current ratings at lower temperatures
- Solder or recessed plug-in connections

All
Listed Models
Avail. for
Immed.
Delivery

OUTPUT VOLTAGE (DC)	CURRENT (55°C)	SIZE W x D x H (INCHES)	CASE†	WEIGHT LBS.	CONNECTOR	MODEL	PRICE
1-33VDC	0-600MA	3-1/4 x 3-1/4 x 5-1/4	9A	3.5	P.C. CONNECTOR	WR33P5	\$130.00
1-33VDC	0-1.2AMP	3-1/4 x 4 x 5-15/16	9B	5.1	P.C. CONNECTOR	WR331	\$155.00
1-18VDC	0-2.4AMP	4 x 4-11/16 x 5-15/16	9C	6.5	P.C. CONNECTOR	WR182	\$170.00
1-33VDC	0-2.4AMP	4-1/4 x 5 x 6-7/8	9D	7.8	P.C. CONNECTOR	WR332	\$185.00
1-33VDC	0-4.8AMP	5-9/16 x 7-1/4 x 6-1/4	9E	13.3	TERMINAL BOARD	WR334	\$255.00
1-33VDC	0-9.6AMP	8-3/4 x 7-5/8 x 6-15/16	9F	22.5	TERMINAL BOARD	WR338	\$305.00

†See Mechanical Data Page 11

For Liberal
**QUANTITY
DISCOUNTS**
See Page 39



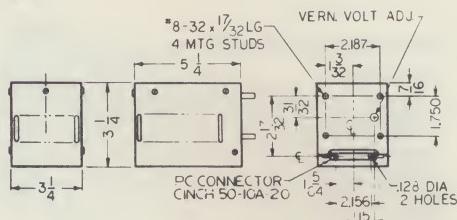
SPECIFICATIONS

Input: 105-125 VAC, 50-400 cps**DC Output:** 1-33 VDC or 1-18 VDC (see table)**Regulator Type:** Solid-state, all-silicon semi-conductors**Ripple:** Less than 800 microvolts RMS or 0.005% whichever is greater**Line Regulation:** Better than $\pm 0.01\%$ or 5 millivolts for full input change**Load Regulation:** Better than 0.05% or 8 millivolts for 0-100% load change**Adjustment Ranges:** 1-7, 7-13, 13-18, 18-23, 23-27, 27-30, 30-33 Model WR182; 1-7, 7-13, 13-18, VDC**Remote Programming:** 500 ohms/volts constant**Vernier Voltage:** Provision for external adjustment**Transient Response:** Less than 50 micro-seconds**Operating Temperature:** -20°C to $+71^{\circ}\text{C}$ free air**Temperature Coefficient:** 0.01% or 3 milli-volts per degrees C**Long Term Stability:** Within 5 millivolts or 0.02% (8 hours reference: line, load temperature constant)**Heat Sinking:** Internal, convection cooled

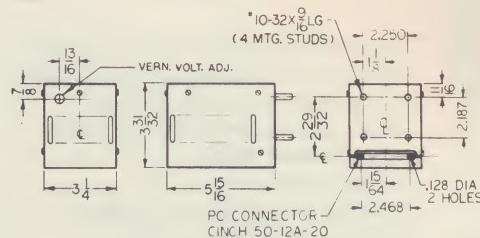
External over-voltage protector available: See Page 27

Connector & Size Data

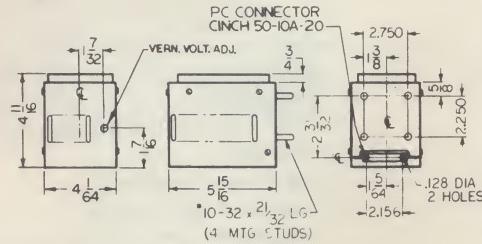
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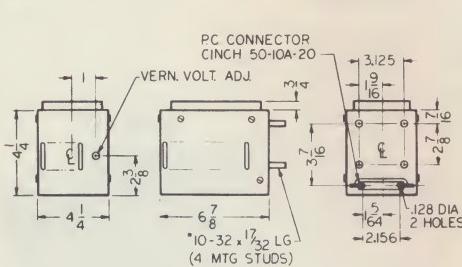
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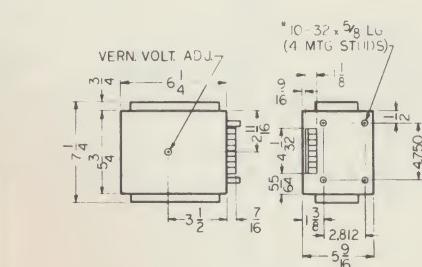
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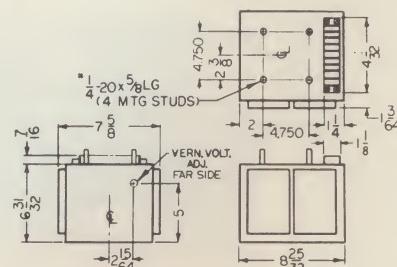
9D



9E



9F



CURRENT RATING TABLE

Model	55°C	71°C
WR33P5	0.6 amp	0.5 amp
WR331	1.2 amp	1 amp
WR332	2.4 amp	2 amp
WR334	4.8 amp	4 amp
WR338	9.6 amp	8 amp
WR181	2.4 amp	2 amp

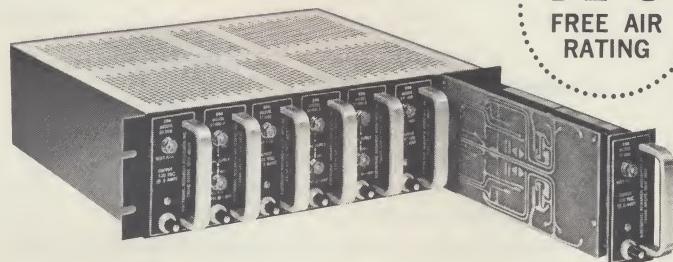
Slim-Tran Series: Variable DC Power Modules

FOR RACK OR MULTIPLE MODULE MOUNTING

ERA's new Slim-Tran Power Modules are all-silicon, highly regulated AC/DC power supplies which provide DC output over a wide, adjustable voltage range. The versatile design permits the use of as many as 7 units to occupy a standard 5-1/2" panel and 19" relay rack assembly. Units can also be grouped in a module configuration, for multiple outputs.

With adjustable, wide range characteristics, a single model can serve many voltage requirements. The use of ST Series units reduces stocking problems, provides greater design flexibility, and practically eliminates power supply obsolescence. Units are available in either single or dual output models. Dual output units provide two separate ungrounded outputs which may also be connected in series or parallel for double output voltage or current ratings.

All ST models are rated for full operation up to 71°C without heat sinking or air blow. Units can be externally



adjusted to provide a wide range of output voltages by a simple tap change and by a front panel vernier control.

ST Transpac Modules are fully repairable and all components are easily accessible for replacement or servicing. All models use transient free circuitry and are fully protected against short circuits or overload and incorporate automatic recovery features.

REGULATION 0.05%

FEATURES

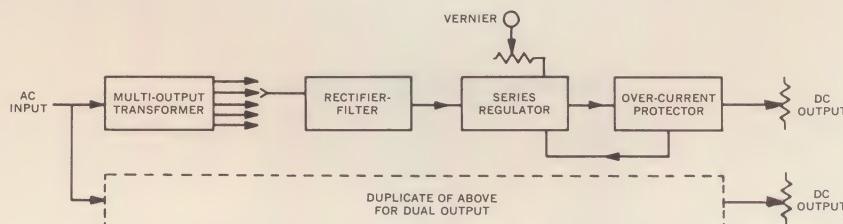
- Unique flat packaged design
- Mount up to 7 units for 19" relay rack use
- Wide range output voltage flexibility
- All-Silicon Designs
- Single or dual outputs
- No heat sinking or air blow required
- Compact, fully repairable
- Automatic over-current protection
- Fast warm-up and stabilization time
- Excellent long-term stability
- Minimal Temperature coefficient
- Wide input range
- Remote sensing
- Front panel voltage adjustment
- Series or parallel operation
- Ungrounded outputs
- Short circuit and transient protected
- "Worst case" specifications
- Optional Rack and Meter Accessories
- Single model serves all voltage requirements
- Solves stocking problems
- Eliminates design obsolescence.

All
Listed Models
Avail. for
Immed.
Delivery

OUTPUT VOLTAGE (DC)	CURRENT (35°)	SIZE W X D X H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
1-63VDC	0-1AMP	2-3/8 x 16-1/2 x 5-1/4	10A	7.5	P.C. CONNECTOR	ST1000	\$165.00
1-33VDC DUAL	0-1AMP DUAL	2-3/8 x 16-1/2 x 5-1/4	10A	7.8	P.C. CONNECTOR	ST1000-2	\$195.00
1-33VDC	0-2AMP	2-3/8 x 16-1/2 x 5-1/4	10A	7.5	P.C. CONNECTOR	ST2000	\$175.00

†See Mechanical Data Page 13

For Liberal
**QUANTITY
DISCOUNTS**
See Page 39

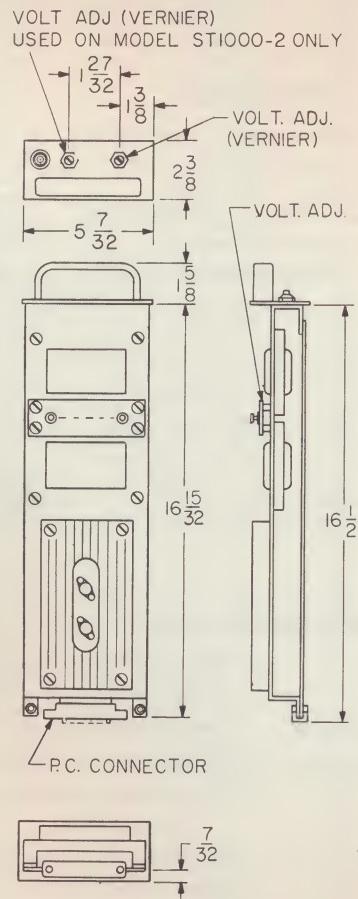
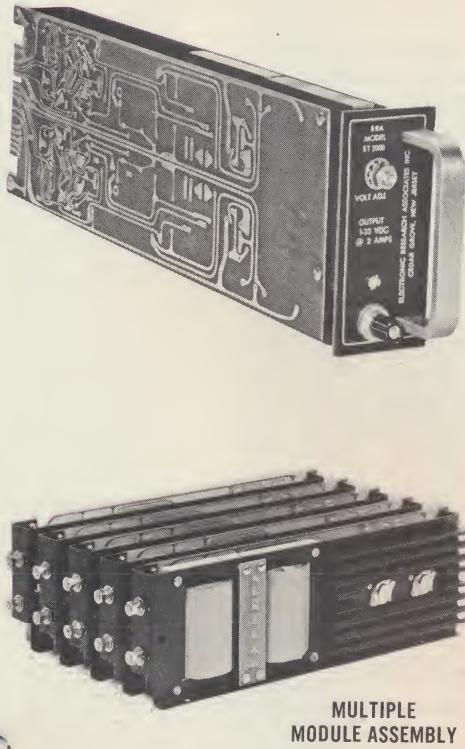


SPECIFICATIONS

Input: 105-125 VDC, 50-400 cps
DC Output: 1-33 VDC or 1-63 VDC depending on model
Regulator Type: Solid-state, all silicon semi-conductors
Ripple: Less than 800 microvolts RMS or 0.005% whichever is greater
Line Regulation: Less than $\pm 0.01\%$ or 5 MV for full input change
Load Regulation: Less than 0.05% or 8 MV for 0-100% load change
Adjustment Range: Model ST 1000: 1-18, 18-33, 33-46, 46-57, 57-63 VDC. Other Models: 1-7, 7-13, 13-18, 18-23, 23-27, 27-30, 30-33, VDC

Transient Response: Less than 50 microseconds
Operating Temperature: -20°C to $+71^{\circ}\text{C}$ free air, full ratings
Maximum Allowable Case Temperature: 130°C
Temperature Coefficient: Less than 0.01% or 3 MV per degree C
Long Term Stability: Within 5 MV or 0.02% for 8 hours (line, load, temperature constant)
Over-Current Protection: Internal, automatic recovery
Heat Sinking: Internal, convection cooled

Size Data - 10A



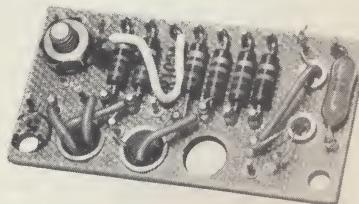
ACCESSORIES OR OPTIONS

Relay Rack Mounting



Accepts 7 units for 19" Relay Rack Mounting (5-1/4" Panel).
Model RST Price \$75.00

Built-in Overvoltage Protector



Prevents output voltage from exceeding preset value. Incorporated within unit. Trip-point factory-set to customer specifications.

Add \$55.00 to model price. Identify with suffix "V" (i.e. ST1000V)

Standard Series Silicon DC Power Modules

71°C
FREE AIR
RATING

High Performance Space-Saving DC Power

Transpac all-silicon modular power sources are high-stability, economically priced silicon modules designed for all low or high temperature applications. These rugged dependable power sources save space, wiring and weight and provide an ultra-reliable source of DC power for all types of electronic devices. Silicon Transpacs feature high stability and full rating operation up to 71°C without external heat sinking or air blow. AC to DC regulated modules incorporate silicon differential DC amplifiers, compensated

temperature zener references, silicon rectifiers, and noninductive filtering. Non-regulated models utilize silicon full wave rectification and other high temperature components. All units are fully protected with automatic recovery against short circuits. Warm up and stabilization time is exceptionally fast. Except for sealed types, components within the compact housings are readily accessible for servicing and replacement purposes.



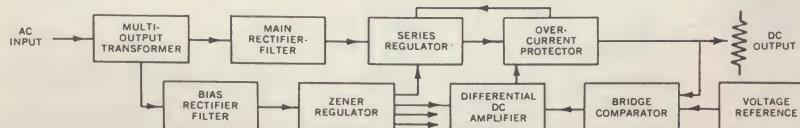
Low-Intermediate Voltage AC to DC Modules

OUTPUTS
0 through 900 VDC

REGULATION 0.05%

FEATURES:

- All-silicon solid-state designs
- Compact, repairable modules
- 71°C free air rating
- No heat sinking or air blow required
- Fast warm-up time and stabilization time
- Less than 5 mv long term stability
- Temperature coefficient less than 0.01% /°C
- Wide input range
- Precision specifications
- Remote sensing
- Remote voltage control
- Adjustable outputs
- Series or parallel operation
- Ungrounded outputs
- Short circuit and transient protected



SPECIFICATIONS:

Input: 105-125 VAC, 50-400 cps

DC output: See table

Regulator type: Solid-state, silicon transistors, silicon diodes

Ripple: Less than 800 microvolts RMS for full input change

Line regulation: Better than $\pm 0.01\%$

or 5 mv for full input change*

Load regulation: Better than 0.05% or 8 millivolts for 0-100% load change

Voltage adjustment: Screw driver adjustment

Output polarity: Ungrounded output

Transient response: Less than 50 microseconds

Operating temperature: -20°C to +71°C free air, full ratings

Maximum case temperature: 110°C

Temperature coefficient: Less than 0.01% per °C or 3 millivolts

Long-term stability: Within 5 millivolts or .02% for 8 hours

Heat sinking: Internal, convection cooled

*Except module SR150P1 through SR300P1 which is $\pm .05\%$ line regulation.

SLOT VOLTAGE SILICON

OUTPUT VOLTAGE (DC)	CURRENT	RIPPLE (RMS)	SIZE W x D x H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
0-5VDC	0-200MA	800 μ V	2-5/8 x 3-1/16 x 4-1/4	6FF	2.1	Solder Loop	SR05P2	\$175.00
0-5VDC	0-500MA	800 μ V	3-1/4 x 3-1/4 x 4-5/8	6GG	2.6	Solder Loop	SR05P5	\$195.00
0-5VDC	0-1AMP	800 μ V	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR051	\$215.00
0-5VDC	0-2AMP	800 μ V	4 x 4-11/16 x 5-15/16	6G	5.6	Solder Loop	SR052	\$240.00
0-5VDC	0-4AMP	800 μ V	5-9/16 x 7-1/4 x 5-3/4	1B	9.7	Term. Block	SR054	\$325.00
0-5VDC	0-8AMP	800 μ V	8-25/32 x 7-5/8 x 6-11/16	1C	21.5	Term. Block	SR058	\$390.00
0-10VDC*	0-50MA	800 μ V	2-17/32 x 3-1/16 x 3-17/32	4A	1.4	Solder Loop	SR01P05	\$150.00
0-10VDC*	0-250MA	800 μ V	2-5/8 x 3-1/16 x 4-1/2	4C	2.3	Solder Loop	SR10P3	\$195.00
1-3VDC	0-15AMP	800 μ V	9-1/16 x 11-13/16 x 7-1/2	7F	33	Term. Block	SR0215	\$430.00
1-3VDC	0-25AMP	800 μ V	9-7/8 x 12-1/2 x 7-1/2	7E	41	Term. Block	SR0225	\$515.00
1-3VDC	0-40AMP	800 μ V	13 x 15 x 7-1/2	7C	53	Term. Block	SR0240	\$635.00
3-5VDC	0-15AMP	800 μ V	9-1/16 x 11-13/16 x 7-1/2	7F	33	Term. Block	SR0415	\$430.00
3-5VDC	0-25AMP	800 μ V	9-7/8 x 12-1/2 x 7-1/2	7E	41	Term. Block	SR0425	\$515.00
3-5VDC	0-40AMP	800 μ V	13 x 15 x 7-1/2	7C	53	Term. Block	SR0440	\$635.00
5-6VDC	0-4AMP	800 μ V	5-9/16 x 7-1/4 x 5-3/4	1B	9.7	Term. Block	SR64	\$295.00
5-6VDC	0-8AMP	800 μ V	8-25/32 x 7-5/8 x 6-11/16	1C	21.5	Term. Block	SR68	\$390.00
5-7VDC	0-500MA	800 μ V	3-1/4 x 3-1/4 x 4-31/32	6C	3.6	Solder Loop	SR6P5	\$115.00
5-7VDC	0-1AMP	800 μ V	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR61	\$165.00
5-7VDC	0-2AMP	800 μ V	4 x 4-11/16 x 5-15/16	6G	5.6	Solder Loop	SR62	\$195.00
5-7VDC	0-15AMP	800 μ V	9-1/16 x 11-13/16 x 7-1/2	7F	33	Term. Block	SR0615	\$430.00
5-7VDC	0-25AMP	800 μ V	9-7/8 x 12-1/2 x 7-1/2	7E	41	Term. Block	SR0625	\$515.00
5-7VDC	0-40AMP	800 μ V	13 x 15 x 7-1/2	7C	53	Term. Block	SR0640	\$645.00
5-10VDC*	0-200MA	800 μ V	2-5/8 x 3-1/16 x 4-1/4	4F	2.4	Octal Plug	SR5P2R	\$175.00
6-7VDC	0-4AMP	800 μ V	5-9/16 x 7-1/4 x 5-3/4	1B	9.7	Term. Block	SR74	\$310.00
6-7VDC	0-8AMP	800 μ V	8-25/32 x 7-5/8 x 6-11/16	1C	21.5	Term. Block	SR78	\$405.00
7-9VDC	0-500MA	800 μ V	3-1/4 x 3-1/4 x 4-31/32	6C	3.6	Solder Loop	SR8P5	\$150.00
7-9VDC	0-1AMP	800 μ V	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR81	\$180.00
7-9VDC	0-2AMP	800 μ V	4 x 4-11/16 x 5-15/16	6G	5.6	Solder Loop	SR82	\$210.00
7-9VDC	0-15AMP	800 μ V	9-1/16 x 11-13/16 x 7-1/2	7F	33	Term. Block	SR0815	\$430.00
7-9VDC	0-25AMP	800 μ V	9-7/8 x 12-1/2 x 7-1/2	7E	41	Term. Block	SR0825	\$515.00
7-9VDC	0-40AMP	800 μ V	16-1/2 x 15-1/4 x 7-1/2	7B	62	Term. Block	SR0840	\$645.00
9-10VDC	0-4AMP	800 μ V	5-9/16 x 7-1/4 x 5-3/4	1B	9.7	Term. Block	SR104	\$310.00
9-10VDC	0-8AMP	800 μ V	8-25/32 x 7-5/8 x 6-11/16	1C	21.5	Term. Block	SR108	\$405.00
9-11VDC	0-500MA	800 μ V	3-1/4 x 3-1/4 x 4-31/32	6C	3.6	Solder Loop	SR10P5	\$150.00
9-11VDC	0-1AMP	800 μ V	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR101	\$190.00
9-11VDC	0-15AMP	800 μ V	9-1/16 x 12-1/2 x 7-1/2	7D	34	Term. Block	SR1015	\$445.00
9-11VDC	0-25AMP	800 μ V	9-7/8 x 12-1/2 x 7-1/2	7E	41	Term. Block	SR1025	\$515.00
9-11VDC	0-40AMP	800 μ V	16-1/2 x 15-1/4 x 7-1/2	7B	62	Term. Block	SR1040	\$660.00
10-20VDC*	0-50MA	800 μ V	2-17/32 x 3-1/16 x 3-17/32	4A	1.4	Solder Loop	SR10P05	\$150.00
11-12VDC	0-4AMP	800 μ V	5-9/16 x 7-1/4 x 5-3/4	1B	9.7	Term. Block	SR124	\$295.00
11-12VDC	0-8AMP	800 μ V	8-25/32 x 7-5/8 x 6-11/16	1C	21.5	Term. Block	SR128	\$390.00
11-13VDC	0-500MA	800 μ V	3-1/4 x 3-1/4 x 4-31/32	6C	3.6	Solder Loop	SR12P5	\$115.00
11-13VDC	0-1AMP	800 μ V	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR121	\$165.00
11-13VDC	0-2AMP	800 μ V	4 x 4-11/16 x 5-15/16	6G	5.6	Solder Loop	SR122	\$195.00
11-13VDC	0-15AMP	800 μ V	9-1/16 x 12-1/2 x 7-1/2	7D	34	Term. Block	SR1215	\$445.00
11-13VDC	0-25AMP	800 μ V	9-7/8 x 12-1/2 x 7-1/2	7E	41	Term. Block	SR1225	\$515.00
11-13VDC	0-40AMP	800 μ V	16-1/2 x 15-1/4 x 7-1/2	7B	62	Term. Block	SR1240	\$660.00
13-14VDC	0-4AMP	800 μ V	6-1/4 x 7-5/8 x 6-1/8	1A	13.1	Term. Block	SR144	\$325.00
13-15VDC	0-500MA	800 μ V	3-1/4 x 3-1/4 x 4-31/32	6C	3.6	Solder Loop	SR14P5	\$155.00
13-15VDC	0-1AMP	800 μ V	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR141	\$190.00
13-15VDC	0-2AMP	800 μ V	4-1/4 x 5 x 6-15/16	6H	8.5	Solder Loop	SR142	\$215.00
13-15VDC	0-15AMP	800 μ V	9-1/16 x 12-1/2 x 7-1/2	7D	34	Term. Block	SR1415	\$445.00
13-15VDC	0-25AMP	800 μ V	13 x 15 x 7-1/2	7C	52	Term. Block	SR1425	\$515.00
13-15VDC	0-40AMP	800 μ V	16-1/2 x 16 x 7-1/2	7A	66	Term. Block	SR1440	\$675.00
14-15VDC	0-4AMP	800 μ V	6-1/4 x 7-5/8 x 6-1/8	1A	13.1	Term. Block	SR154	\$315.00
14-15VDC	0-8AMP	800 μ V	10-1/2 x 7-1/2 x 6-5/8	1D	24.1	Term. Block	SR158	\$410.00
15-16VDC	0-4AMP	800 μ V	6-1/4 x 7-5/8 x 6-1/8	1A	13.1	Term. Block	SR164	\$325.00
15-16VDC	0-8AMP	800 μ V	10-1/2 x 7-1/2 x 6-5/8	1D	24.1	Term. Block	SR168	\$410.00
15-17VDC	0-500MA	800 μ V	3-1/4 x 3-1/4 x 4-31/32	6C	3.6	Solder Loop	SR16P5	\$155.00
15-17VDC	0-15AMP	800 μ V	9-1/16 x 12-1/2 x 7-1/2	7D	34	Term. Block	SR1615	\$445.00
15-17VDC	0-25AMP	800 μ V	13 x 15 x 7-1/2	7C	52	Term. Block	SR1625	\$515.00
15-17VDC	0-40AMP	800 μ V	16-1/2 x 16 x 7-1/2	7A	66	Term. Block	SR1640	\$675.00
17-18VDC	0-4AMP	800 μ V	6-1/4 x 7-5/8 x 6-1/8	1A	13.1	Term. Block	SR184	\$325.00
17-18VDC	0-8AMP	800 μ V	10-1/2 x 7-1/2 x 6-5/8	1D	24.1	Term. Block	SR188	\$410.00
17-19VDC	0-500MA	800 μ V	3-1/4 x 3-1/4 x 4-31/32	6C	3.6	Solder Loop	SR18P5	\$155.00

*See Mechanical Data Pages 23, 24, 25

* Adjustable via external resistor

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OUTPUT VOLTAGE (DC)	CURRENT	RIPPLE (RMS)	SIZE W X D X H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
17-19VDC	0-1AMP	800μV	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR181	\$190.00
17-19VDC	0-2AMP	800μV	4-1/4 x 5 x 6-15/16	6H	8.5	Solder Loop	SR182	\$215.00
17-19VDC	0-15AMP	800μV	9-1/16 x 12-1/2 x 7-1/2	7D	34	Term. Block	SR1815	\$430.00
17-19VDC	0-25AMP	800μV	13 x 15 x 7-1/2	7C	52	Term. Block	SR1825	\$515.00
17-19VDC	0-40AMP	800μV	16-1/2 x 16 x 7-1/2	7A	66	Term. Block	SR1840	\$675.00
19-20VDC	0-4AMP	800μV	6-1/4 x 7-5/8 x 6-1/8	1A	13.1	Term. Block	SR204	\$315.00
19-20VDC	0-8AMP	800μV	10-1/2 x 7-1/2 x 6-5/8	1D	24.1	Term. Block	SR208	\$410.00
19-21VDC	0-500MA	800μV	3-1/4 x 3-1/4 x 4-31/32	6C	3.6	Solder Loop	SR20P5	\$135.00
19-21VDC	0-1AMP	800μV	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR201	\$195.00
19-21VDC	0-2AMP	800μV	4-1/4 x 5 x 6-15/16	6H	8.5	Solder Loop	SR202	\$215.00
19-21VDC	0-15AMP	800μV	9-1/16 x 12-1/2 x 7-1/2	7D	35	Term. Block	SR2015	\$445.00
19-21VDC	0-25AMP	800μV	13 x 15 x 7-1/2	7C	53	Term. Block	SR2025	\$515.00
19-21VDC	0-40AMP	800μV	16-1/2 x 16 x 7-1/2	7A	66	Term. Block	SR2040	\$675.00
20-30VDC*	0-150MA	800μV	2-5/8 x 3-1/16 x 4-1/4	4F	2.7	Octal Plug	SR20P1R	\$170.00
20-30VDC*	0-250MA	800μV	3-1/4 x 3-1/4 x 4-31/32	4H	3.8	Solder Loop	SR30P3	\$145.00
21-23VDC	0-15AMP	800μV	9-1/16 x 12-1/2 x 7-1/2	7D	35	Term. Block	SR2215	\$445.00
21-23VDC	0-25AMP	800μV	13 x 15 x 7-1/2	7C	53	Term. Block	SR2225	\$515.00
21-23VDC	0-40AMP	800μV	16-1/2 x 16-1/2 x 7-1/2	7A	66	Term. Block	SR2240	\$675.00
23-24VDC	0-4AMP	800μV	6-1/4 x 7-5/8 x 6-1/8	1A	13.1	Term. Block	SR244	\$330.00
23-24VDC	0-8AMP	800μV	10-1/2 x 7-1/2 x 6-5/8	1D	24.1	Term. Block	SR248	\$410.00
23-25VDC	0-500MA	800μV	3-1/4 x 3-1/4 x 4-31/32	6C	3.6	Solder Loop	SR24P5	\$135.00
23-25VDC	0-1AMP	800μV	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR241	\$195.00
23-25VDC	0-2AMP	800μV	4-1/4 x 5 x 6-15/16	6H	8.5	Solder Loop	SR242	\$200.00
23-25VDC	0-15AMP	800μV	9-1/16 x 12-1/2 x 7-1/2	7D	35	Term. Block	SR2415	\$445.00
23-25VDC	0-25AMP	800μV	13 x 15 x 7-1/2	7C	53	Term. Block	SR2425	\$525.00
23-25VDC	0-40AMP	800μV	16-1/2 x 16 x 7-1/2	7A	67	Term. Block	SR2440	\$685.00
24-25VDC	0-4AMP	800μV	6-1/4 x 7-5/8 x 6-1/8	1A	13.1	Term. Block	SR254	\$330.00
25-27VDC	0-1AMP	800μV	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR261	\$195.00
25-27VDC	0-2AMP	800μV	4-1/4 x 5 x 6-15/16	6H	8.5	Solder Loop	SR262	\$220.00
25-27VDC	0-15AMP	800μV	9-1/16 x 12-1/2 x 7-1/2	7D	35	Term. Block	SR2615	\$445.00
25-27VDC	0-25AMP	800μV	13 x 15 x 7-1/2	7C	53	Term. Block	SR2625	\$525.00
25-27VDC	0-40AMP	800μV	16-1/2 x 16 x 7-1/2	7A	67	Term. Block	SR2640	\$685.00
27-28VDC	0-4AMP	800μV	6-1/4 x 7-5/8 x 6-1/8	1A	13.1	Term. Block	SR284	\$335.00
27-28VDC	0-8AMP	800μV	10-1/2 x 7-1/2 x 6-5/8	1D	24.1	Term. Block	SR288	\$395.00
27-29VDC	0-500MA	800μV	3-1/4 x 3-1/4 x 4-31/32	6C	3.6	Solder Loop	SR28P5	\$155.00
27-29VDC	0-1AMP	800μV	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR281	\$175.00
27-29VDC	0-2AMP	800μV	4-1/4 x 5 x 6-15/16	6H	8.5	Solder Loop	SR282	\$205.00
27-29VDC	0-15AMP	800μV	9-1/16 x 12-1/2 x 7-1/2	7D	35	Term. Block	SR2815	\$445.00
27-29VDC	0-25AMP	800μV	13 x 15 x 7-1/2	7C	53	Term. Block	SR2825	\$525.00
27-29VDC	0-40AMP	800μV	16-1/2 x 16 x 7-1/2	7A	67	Term. Block	SR2840	\$685.00
28-29VDC	0-4AMP	800μV	6-1/4 x 7-5/8 x 6-1/8	1A	13.1	Term. Block	SR294	\$335.00
28-29VDC	0-8AMP	800μV	10-1/2 x 7-1/2 x 6-5/8	1D	24.1	Term. Block	SR298	\$410.00
29-31VDC	0-15AMP	800μV	9-1/16 x 12-1/2 x 7-1/2	7D	35	Term. Block	SR3015	\$445.00
29-31VDC	0-25AMP	800μV	13 x 15 x 7-1/2	7C	53	Term. Block	SR3025	\$525.00
29-31VDC	0-40AMP	800μV	16-1/2 x 16 x 7-1/2	7A	67	Term. Block	SR3040	\$685.00
30-40VDC	0-250MA	800μV	3-1/4 x 3-1/4 x 4-31/32	4H	3.7	Solder Loop	SR40P3	\$145.00
31-32VDC	0-4AMP	800μV	6-1/4 x 7-5/8 x 6-1/8	1A	13.1	Term. Block	SR324	\$335.00
31-32VDC	0-8AMP	800μV	10-1/2 x 7-1/2 x 6-5/8	1D	24.1	Term. Block	SR328	\$410.00
31-33VDC	0-500MA	800μV	3-1/4 x 3-1/4 x 4-31/32	6C	3.7	Solder Loop	SR32P5	\$165.00
31-33VDC	0-1AMP	800μV	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR321	\$195.00
31-33VDC	0-2AMP	800μV	4-1/4 x 5 x 6-15/16	6H	8.5	Solder Loop	SR322	\$225.00
35-37VDC	0-500MA	800μV	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR36P5	\$165.00
39-41VDC	0-500MA	800μV	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR40P5	\$165.00
39-41VDC	0-1AMP	800μV	4 x 4-11/16 x 5 x 5-15/16	6G	5.6	Solder Loop	SR401	\$210.00
39-41VDC	0-2AMP	800μV	4-1/4 x 5 x 6-15/16	6H	8.5	Solder Loop	SR402	\$255.00
40-50VDC*	0-150MA	800μV	2-5/8 x 3-1/16 x 4-1/2	4G	2.6	Octal Plug	SR40P1R	\$175.00
40-50VDC*	0-250MA	800μV	3-1/4 x 3-1/4 x 4-31/32	4H	3.7	Solder Loop	SR50P3	\$165.00
44-46VDC	0-500MA	800μV	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR45P5	\$150.00
44-46VDC	0-1AMP	800μV	4 x 4-11/16 x 5 x 5-15/16	6G	5.6	Solder Loop	SR451	\$210.00
44-46VDC	0-2AMP	800μV	4-1/4 x 5 x 6-15/16	6H	8.5	Solder Loop	SR452	\$255.00
50-52VDC	0-500MA	800μV	3-1/4 x 4 x 5-15/16	6I	4.9	Solder Loop	SR51P5	\$185.00
50-52VDC	0-1AMP	800μV	4-1/4 x 5 x 6-15/16	6H	8.5	Solder Loop	SR511	\$240.00
59-61VDC	0-500MA	800μV	3-1/4 x 4 x 5-15/16	6D	4.9	Solder Loop	SR60P5	\$170.00
59-61VDC	0-1AMP	800μV	4-1/4 x 5 x 6-15/16	6H	8.5	Solder Loop	SR601	\$240.00
60-70VDC*	0-100MA	800μV\$	2-5/8 x 3-1/16 x 4-1/2	4G	2.6	Octal Plug	SR60P1R	\$185.00
70-80VDC*	0-100MA	800μV\$	2-5/8 x 3-1/16 x 4-1/2	4G	2.6	Octal Plug	SR70P1R	\$185.00
80-90VDC*	0-100MA	800μV\$	2-5/8 x 3-1/16 x 4-1/2	4G	2.6	Octal Plug	SR80P1R	\$185.00
90-100VDC*	0-100MA	800μV\$	2-5/8 x 3-1/16 x 4-1/2	4G	2.6	Octal Plug	SR90P1R	\$185.00
100-110VDC*	0-100MA	800μV\$	2-5/8 x 3-1/16 x 4-1/2	4G	2.6	Octal Plug	SR100P1R	\$185.00
150-160VDC	0-100MA	800μV\$	3-5/16 x 3-9/16 x 6	6S	2.6	Octal Plug	SR150P1	\$175.00
150-160VDC	0-100MA	800μV\$	3-5/16 x 3-9/16 x 6	6S	5.6	Octal Plug	SR200P1	\$195.00
250-260VDC	0-100MA	800μV\$	4 x 4-11/16 x 5 x 5-15/16	6R	5.6	Octal Plug	SR250P1	\$225.00
300-310VDC	0-100MA	800μV\$	4 x 4-11/16 x 5 x 5-15/16	6R	6.5	Octal Plug	SR300P1	\$235.00

* or .005% whichever is greater

* Adjustable via external resistor

† See mechanical data pages 23, 24, 25

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REGULATION 0.1%

Standard Series Silicon DC Power Modules (Continued)

FEATURES

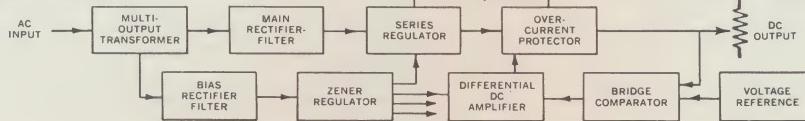
- Solid-state all-silicon designs
- 71°C free air rating
- Ultra-compact, repairable modules
- No heat sinking or air blow required
- Closely regulated
- Low ripple content
- Ungrounded outputs
- Transient and short circuit protected
- Instant starting
- Remote voltage control
- Remote sensing
- Parallel operation
- High stability
- Wide range adjustable outputs
- Conservative, rugged designs

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OUTPUT VOLTAGE (DC)	100-110VDC CURRENT (71°C)	RIPPLE (RMS)	SIZE W X D X H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
5-10VDC	0-200MA	0.05%	2-5/8 x 3-1/16 x 4-1/4	6A	2.7	Octal Plug	SR5P2	\$ 95.00
10-20VDC	0-200MA	0.05%	2-5/8 x 3-1/16 x 4-1/4	6A	2.7	Octal Plug	SR10P2	\$ 95.00
20-30VDC	0-150MA	0.01%	2-5/8 x 3-1/16 x 4-1/4	6A	2.7	Octal Plug	SR20P1	\$110.00
30-40VDC	0-150MA	0.01%	2-5/8 x 3-1/16 x 4-1/4	6A	2.7	Octal Plug	SR30P1	\$110.00
40-50VDC	0-150MA	0.01%	2-5/8 x 3-1/16 x 4-1/2	6X	2.8	Octal Plug	SR40P1	\$110.00
50-60VDC	0-150MA	0.01%	2-5/8 x 3-1/16 x 4-1/2	6X	2.8	Octal Plug	SR50P1	\$110.00
60-70VDC	0-100MA	0.01%	2-5/8 x 3-1/16 x 4-1/2	6X	2.8	Octal Plug	SR60P1	\$115.00
70-80VDC	0-100MA	0.01%	2-5/8 x 3-1/16 x 4-1/2	6X	2.8	Octal Plug	SR70P1	\$115.00
80-90VDC	0-100MA	0.01%	2-5/8 x 3-1/16 x 4-1/2	6X	2.8	Octal Plug	SR80P1	\$115.00
90-100VDC	0-100MA	0.01%	2-5/8 x 3-1/16 x 4-1/2	6X	2.8	Octal Plug	SR90P1	\$125.00
100-110VDC	0-100MA	0.01%	2-5/8 x 3-1/16 x 4-1/2	6X	2.8	Octal Plug	SR100P1	\$120.00

† See Mech. Data Pages 23, 24, 25

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SPECIFICATIONS

Input: 105-125 VAC, 50-400 cps

DC output: See table

Ripple: 0.01% -0.05% RMS (see table)

Regulator type: Solid-state, silicon transistors, silicon diodes

Line regulation: Better than $\pm 0.1\%$ for 105-125 VAC

Load regulation: Better than 0.1% or 35 millivolts

Voltage adjustment: Screw driver adjustment

Output polarity: Ungrounded output

Transient response: Less than 50 microseconds

Operating temperature: -20°C to +71°C free air, full ratings

Maximum case temperature: +110°C

Temperature coefficient: 0.01% per °C or 3 millivolts

Heat sinking: Internal, convection cooled

REGULATION 0.5%

FEATURES

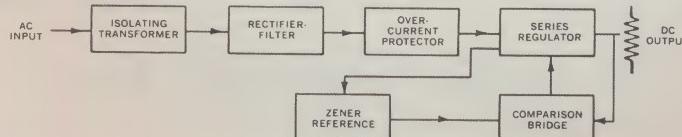
- Encapsulated, hermetically sealed modules
- All-silicon, solid-state designs
- 71°C temperature rating
- Minimum size and weight
- Load and line regulated
- Ungrounded outputs
- Transient and short circuit protected
- Instant starting
- Conservative, long-life designs

All
Listed Models
Avail. for
Immed.
Delivery

OUTPUT VOLTAGE (DC)	CURRENT (71°C)	RIPPLE (RMS)	SIZE W X D X H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
5VDC	0-15MA	0.05%	2-3/8 x 2-3/4 x 2-13/16	6M	1.2	Solder Loop	SV5	\$65.00
10VDC	0-15MA	0.05%	2-3/8 x 2-3/4 x 2-13/16	6M	1.2	Solder Loop	SV10	\$65.00
15VDC	0-15MA	0.05%	2-3/8 x 2-3/4 x 2-13/16	6M	1.2	Solder Loop	SV15	\$65.00
25VDC	0-15MA	0.05%	2-3/8 x 2-3/4 x 2-13/16	6M	1.2	Solder Loop	SV25	\$70.00
30VDC	0-15MA	0.05%	2-3/8 x 2-3/4 x 2-13/16	6M	1.2	Solder Loop	SV30	\$70.00
50VDC	0-15MA	0.05%	2-3/8 x 2-3/4 x 2-13/16	6M	1.2	Solder Loop	SV50	\$75.00

† See Mech. Data
Pages 23, 24, 25

For Liberal
QUANTITY
DISCOUNTS
See Page 39



SPECIFICATIONS

Input: 115 VAC nom, 125 VAC max. 50-400 cps

DC output: See table

Ripple: 0.05% or 5 mv

Rectification: Silicon full wave rectification

Voltage adjustment: Fixed output, specified within 5%

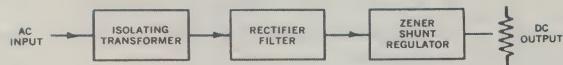
Output polarity: Ungrounded outputs

Operating temperature: -20°C to +71°C

Maximum case temperature: +110°C

REGULATION 1.5%**FEATURES**

- All-silicon, solid-state designs
- 71°C temperature rating
- Compact, light weight
- Encapsulated, hermetically sealed
- Rugged, long-life designs
- Load and line regulated
- Short circuit protected
- Ungrounded outputs
- Instant starting



**BOLD
FACE
Listings
Avail. for
IMMED.
DELIVERY**

OUTPUT VOLTAGE (DC)	CURRENT (71°C)	RIPPLE (RMS)	SIZE W x D x H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
75VDC	0-20MA	0.1%	2-3/8 x 2-3/4 x 3-13/16	6U	1.5	Solder Loop	SV75	\$ 80.00
105VDC	0-20MA	0.1%	2-3/8 x 2-3/4 x 2-13/16	6M	1.6	Solder Loop	SV105	\$ 80.00
150VDC	0-20MA	0.1%	2-3/8 x 2-3/4 x 2-13/16	6M	1.6	Solder Loop	SV150	\$ 85.00
180VDC	0-20MA	0.1%	2-5/8 x 3-1/16 x 4-1/4	6B	2.0	Solder Loop	SV180	\$ 85.00
210VDC	0-20MA	0.1%	2-3/8 x 2-3/4 x 3-13/16	6U	2.0	Solder Loop	SV210	\$ 95.00
250VDC	0-20MA	0.1%	2-3/8 x 2-3/4 x 3-13/16	6U	2.0	Solder Loop	SV250	\$ 95.00
300VDC	0-20MA	0.1%	2-5/8 x 3-1/16 x 4-1/4	6B	2.0	Solder Loop	SV300	\$115.00
600VDC	0-5MA	0.1%	3-1/16 x 3-9/16 x 4-7/8	6EE	5.0	Solder Loop	SV600	\$155.00
900VDC	0-5MA	0.1%	3-1/16 x 3-9/16 x 4-7/8	6EE	5.1	Solder Loop	SV900	\$165.00

†See Mechanical Data Page 24, 25

For Liberal
**QUANTITY
DISCOUNTS**
See Page 39

SPECIFICATIONS

- Input:** 105-125 VAC, 50-400 cps
DC output: See table
Ripple: Less than 0.1% RMS
Regulator type: Solid-state, silicon transistor, silicon diodes
Line regulation: Better than $\pm 1.5\%$ for 105-125 VAC input
Load regulation: Better than 1.5% for full load change

- Voltage adjustment:** Fixed output, specified within 5%
Physical: Encapsulated, hermetically sealed in transformer housings
Output polarity: Ungrounded outputs
Operating temperature: -20°C to $+71^{\circ}\text{C}$
Maximum case temperature: $+110^{\circ}\text{C}$

UNREGULATED**FEATURES**

- Encapsulated, or repairable designs
- Solid-state rectification
- Low internal impedance
- Minimum size and weight
- Rugged long-life designs
- Moderately priced

OUTPUT VOLTAGE (DC)	100-110VDC CURRENT (71°C)	RIPPLE (RMS)	SIZE W x D x H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
6.3VDC	0-3AMP	5%	3-7/8 x 3-7/8 x 4-3/4	6N	7.0	Solder Loop	F6	\$ 65.00
12.6VDC	0-2AMP	5%	3-7/8 x 3-7/8 x 4-3/4	6N	7.0	Solder Loop	F12	\$ 65.00
24VDC	0-5AMP	1.5V	5-7/8 x 4-13/16 x 6-1/8	13A	12	Terminal Block	F24/5*	\$ 95.00
24VDC	0-12AMP	1.5V	6-1/2 x 6-1/16 x 8-1/8	13B	23	Terminal Block	F24/12*	\$120.00
24VDC	0-23AMP	1.5V	6-1/2 x 6-1/8 x 9	13C	33	Terminal Block	F24/23*	\$150.00
25.2VDC	0-1AMP	5%	3-7/8 x 3-7/8 x 4-3/4	6N	7.0	Solder Loop	F25	\$ 65.00
28VDC	0-12AMP	1.5V	6-1/2 x 6-1/16 x 8-1/8	13B	23	Terminal Block	F28/12*	\$125.00
28VDC	0-23AMP	1.5V	6-1/2 x 6-1/8 x 9	13C	33	Terminal Block	F28/23*	\$155.00
30VDC	0-50MA	0.5%	2-3/8 x 2-3/4 x 2-13/16	6M	1.3	Solder Loop	V30	\$ 65.00
60VDC	0-50MA	0.5%	2-3/8 x 2-3/4 x 2-13/16	6M	1.5	Solder Loop	V60	\$ 60.00
135VDC	0-75MA	0.5%	2-3/8 x 2-3/4 x 2-13/16	6U	2.5	Solder Loop	V135	\$ 70.00
150VDC	0-70MA	0.5%	2-3/8 x 2-3/4 x 2-13/16	6U	2.5	Solder Loop	V150	\$ 65.00
250VDC	0-70MA	0.5%	2-5/8 x 3-1/16 x 4-1/4	6B	3.2	Solder Loop	V250	\$ 70.00
300VDC	0-100MA	0.5%	3-1/16 x 3-9/16 x 4-7/8	6EE	5.0	Solder Loop	V300	\$ 70.00
350VDC	0-100MA	0.5%	3-1/16 x 3-9/16 x 4-7/8	6EE	5.0	Solder Loop	V350	\$ 70.00

†See Mechanical Data Page 24, 25

For Liberal
**QUANTITY
DISCOUNTS**
See Page 39

**SPECIFICATIONS:**

- Input:** 115 VAC nom, 125 VAC max. 60-400 cps
DC output: See table
Ripple: See table
Rectification: Silicon full wave rectification

- Voltage adjustment:** Fixed output, specified within 5%
Output polarity: Ungrounded outputs
Operating temperature: -20°C to $+55^{\circ}\text{C}$
Maximum case temperature: $+85^{\circ}\text{C}$

High Voltage AC to DC Modules

OUTPUTS
1000 through 15000 VDC

An all solid-state double conversion system is used to convert from AC input to regulated high voltage DC output. Regulation is accomplished in the low voltage DC sections which provides for additional

stability and reliability. The units are fully encapsulated which permits operation under high humidity conditions and minimizes the possibilities of high voltage or Corona breakdown.

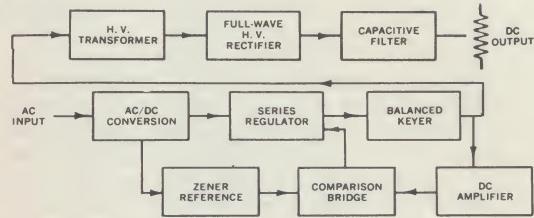
REGULATED**FEATURES**

- Transpac, high voltage modules
- High temperature 71°C performance
- All solid-state silicon designs
- Input and output regulated
- Low ripple content
- Short circuit protected
- Instant starting
- High breakdown voltage
- High stability
- Encapsulated and hermetically sealed
- Long-life, rugged designs

All
Listed Models
Avail. for
Immed.
Delivery

OUTPUT VOLTAGE (DC)	CURRENT (71°C)	RIPPLE (RMS)	(INCHES) SIZE W x D x H	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
1000VDC	0-2MA	0.5%	3-5/8 x 4-1/4 x 5-1/2	3A	4.0	HV Terminals	SAR1K/2	\$295.00
3000VDC	0-2MA	0.5%	3-15/16 x 4-5/8 x 5-15/16	3B	5.2	HV Terminals	SAR3K/2	\$345.00
5000VDC	0-2MA	0.5%	4-1/4 x 5 x 6-3/4	3C	5.8	HV Terminals	SAR5K/2	\$395.00

†See Mechanical Data Page 23



For Liberal
**QUANTITY
DISCOUNTS**
See Page 39

SPECIFICATIONS:

- Input:** 105-125 VAC, 50-400 cps
DC output: See table
Ripple: Less than 0.5% RMS
Regulator type: Solid-state, silicon transistors, silicon diodes
Line regulation: 1—2 MA Models: better than $\pm 0.2\%$
 0.1 MA Models: better than $\pm 0.5\%$ for full input change
Load regulation: 1—2 MA Models: better than 0.3% for full load change
 0.1 MA Models: better than 0.5% for full load change

- Voltage adjustment:** Fixed output, specified within 5%
Breakdown voltage: Better than 140% of terminal voltage (RMS) to ground
Output polarity: 1—2 MA types: negative terminal grounded*
 0.1 MA types: ungrounded output
Operating temperature: -20°C to $+71^{\circ}\text{C}$
Maximum case temperature: $+110^{\circ}\text{C}$
Physical: Encapsulated in transformer housings

*Positive Terminal Ground Supplied on Order

UNREGULATED**FEATURES:**

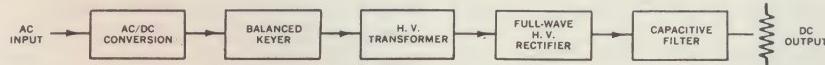
- Compact, high voltage modules
- 71°C performance
- Silicon full wave rectification
- Ungrounded outputs
- Short circuit protected
- High breakdown voltage
- Encapsulated and hermetically sealed
- Long-life, rugged designs

All
Listed Models
Avail. for
Immed.
Delivery

OUTPUT VOLTAGE (DC)	CURRENT (71°C)	RIPPLE (RMS)	SIZE W x D x H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
1000VDC	0-0.1MA	0.5%	1-21/32 x 1-21/32 x 2-3/8	2J	0.5	HV Terminals	SA1K/.1	\$155.00
1500VDC	0-2MA	1%	3-1/16 x 3-9/16 x 4-7/8	2D	4.5	HV Terminals	S1.5K/2	\$120.00
2500VDC	0-2MA	1%	3-1/16 x 3-9/16 x 4-7/8	2D	4.6	HV Terminals	S2.5K/2	\$135.00
3000VDC	0-0.1MA	0.5%	1-3/4 x 1-7/8 x 2-15/16	2H	0.6	HV Terminals	SA3K/.1	\$190.00
5000VDC	0-0.1MA	0.5%	2 x 2-1/4 x 3-1/8	2G	0.9	HV Terminals	SA5K/.1	\$220.00
5000VDC	0-2MA	2%	3-15/16 x 4-5/8 x 4-15/16	2B	6.0	HV Terminals	S5K/2	\$195.00
10000VDC	0-1MA	2%	3-15/16 x 4-5/8 x 4-15/16	2B	6.0	HV Terminals	S10K/1	\$275.00
15000VDC	0-1MA	2%	4-1/4 x 5 x 6-15/16	2C	7.5	HV Terminals	S15K/1	\$385.00

†See Mechanical Data Page 23, 24

For Liberal
**QUANTITY
DISCOUNTS**
See Page 39

**SPECIFICATIONS:**

- Input:** 115 VAC nom, 125 max, 50-400 cps
DC output: See table
Ripple: See table
Rectifier type: Silicon rectifiers, full wave rectification
Voltage adjustment: Fixed output specified within 5%

- Breakdown voltage:** Better than 140% of terminal voltage (RMS) to ground
Output polarity: Ungrounded output
Operating temperature: -20°C to $+71^{\circ}\text{C}$
Maximum case temperature: $+110^{\circ}\text{C}$

SLOT VOLTAGE GERMANIUM

Germanium Series: Low Cost DC Power Modules

LOW COST GERMANIUM MODELS FOR LOW BUDGET, SMALL SPACE REQUIREMENTS

Transpac germanium modular power sources are solid-state self-contained AC-DC power packs which are wired into circuits like other components. These models are available in a wide range of current and voltage ratings regulated or unregulated. Transpac slot voltage germanium power modules provide a reliable stable source of DC power for all types of electrical or electronic devices. They save space, wiring and weight. Regulated types incorporate line isolation and circuit designs include the use of differential DC amplifiers, compensated zener references, silicon rectifiers and non-inductive filtering. Units also incorporate overload protective circuitry with automatic recovery. Transpac models may be operated in parallel or in series for enhanced current or voltage ratings. There is also provision for remote sensing and units may also be remotely con-

trolled or remotely programmed. Non-regulated models utilize line isolation transformers unless noted and full wave rectification. Semiconductors for all models are operated well below maximum ratings and the unique thermal designs maintain conservative operation with minimum heat rise. Thermal ratings given are for free operation and no heat sinking or air blow is required. Except for sealed models, components within the compact housings are readily accessible for servicing and replacement purposes.

All Transpac units are ruggedly constructed and are ideally suited for providing DC power to solid-state equipment, integrated circuitry, guided missile circuits, computer units, manufacturing processes and all related types of miniature and standard size electronic devices.



Low Intermediate Voltage AC to DC Modules

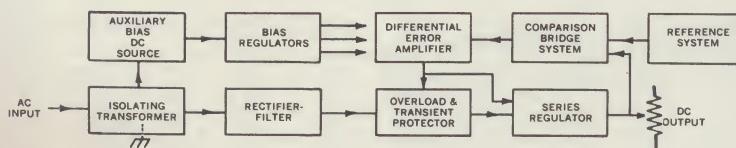
OUTPUTS
5 through 310 VDC

REGULATION 0.05%

FEATURES

- All solid-state designs
- Compact repairable modules
- 55°C free air rating
- No heat sinking or air blow required
- Fast warm-up time
- Closely regulated
- Low ripple content
- Load and short circuit protected
- Ungrounded outputs
- Remote sensing provisions
- Parallel operation
- High stability
- Conservative, rugged designs
- Moderately priced

55°C
FREE AIR
RATING



SPECIFICATIONS

Input: 105-125 VAC, 60-400 cps ①

DC output: See table

Ripple: Less than 2 millivolts RMS ②

Regulator type: Solid-state, germanium transistors, silicon diodes ③

Line regulation: Better than 0.05% or 5 millivolts for 105-125 VAC input

Load regulation: Better than 0.05% or 5 millivolts for full load change

Voltage adjustment: Screw-driver adjustment

Output polarity: Ungrounded outputs

Transient response: Less than 50 microseconds

Operating temperature: -20°C to +55°C, free air, full ratings

Maximum case temperature: +85°C

Temperature coefficient: 0.05% per °C

Heat sinking: Internal, convection cooled

① TR-MA TYPES 60, OR 400 CPS (CUSTOMER TO SPECIFY)

② TR-MA TYPES, LESS THAN 0.01% RMS

③ TR-MA TYPES ALSO INCLUDE MAGNETIC-RESONANT PRE-REGULATOR

SLOT VOLTAGE GERMANIUM

OUTPUT VOLTAGE (DC)	CURRENT	RIPPLE (RMS)	SIZE W X D X H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
5-6VDC	0-4AMP	2MV	5-9/16 x 7-1/4 x 5-3/4	1B	10.2	Terminal Block	TR64R	\$255.00
5-6VDC	0-8AMP	2MV	8-25/32 x 7-5/8 x 6-11/16	1C	19.0	Terminal Block	TR68R	\$295.00
5-7VDC	0-500MA	2MV	3-1/4 x 3-1/4 x 4-5/8	6GG	3.0	Solder Loop	TR6P5R	\$105.00
5-7VDC	0-1AMP	2MV	3-1/4 x 4 x 5-15/16	6F	5.3	Solder Loop	TR61R	\$150.00
5-7VDC	0-2AMP	2MV	4 x 4-11/16 x 5-15/16	6G	6.4	Solder Loop	TR6R	\$165.00
11-12VDC	0-4AMP	2MV	5-9/16 x 7-1/4 x 5-3/4	1B	10.2	Terminal Block	TR124R	\$255.00
11-12VDC	0-8AMP	2MV	8-25/32 x 7-5/8 x 6-11/16	1C	19.0	Terminal Block	TR128R	\$295.00
11-13VDC	0-500MA	2MV	3-1/4 x 3-1/4 x 4-5/8	6GG	3.0	Solder Loop	TR12P5R	\$90.00
11-13VDC	0-1AMP	2MV	3-1/4 x 4 x 5-15/16	6F	5.3	Solder Loop	TR121R	\$155.00
11-13VDC	0-2AMP	2MV	4 x 4-11/16 x 5-15/16	6G	6.4	Solder Loop	TR12R	\$165.00
12-13VDC	0-4AMP	2MV	5-9/16 x 7-1/4 x 5-3/4	1B	10.2	Terminal Block	TR134R	\$275.00
12-13VDC	0-8AMP	2MV	8-25/32 x 7-5/8 x 6-11/16	1C	19.0	Terminal Block	TR138R	\$320.00
13-14VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR144R	\$275.00
13-14VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR148R	\$320.00
13-15VDC	0-500MA	2MV	3-1/4 x 3-1/4 x 4-5/8	6GG	3.0	Solder Loop	TR14P5R	\$110.00
13-15VDC	0-1AMP	2MV	3-1/4 x 4 x 5-15/16	6F	5.5	Solder Loop	TR141R	\$155.00
13-15VDC	0-2AMP	2MV	4-1/4 x 5 x 6-15/16	6H	8.2	Solder Loop	TR142R	\$185.00
14-15VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR154R	\$275.00
14-15VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR158R	\$320.00
17-18VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR184R	\$275.00
17-18VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR188R	\$305.00
17-19VDC	0-500MA	2MV	3-1/4 x 3-1/4 x 4-5/8	6GG	3.0	Solder Loop	TR18P5R	\$110.00
17-19VDC	0-1AMP	2MV	3-1/4 x 4 x 5-15/16	6F	5.5	Solder Loop	TR181R	\$140.00
17-19VDC	0-2AMP	2MV	4-1/4 x 5 x 6-15/16	6H	8.2	Solder Loop	TR18R	\$180.00
19-20VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR204R	\$275.00
19-20VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR208R	\$320.00
19-21VDC	0-500MA	2MV	3-1/4 x 3-1/4 x 4-5/8	6GG	3.0	Solder Loop	TR20P5R	\$110.00
19-21VDC	0-1AMP	2MV	3-1/4 x 4 x 5-15/16	6F	5.3	Solder Loop	TR201R	\$155.00
19-21VDC	0-2AMP	2MV	4-1/4 x 5 x 6-15/16	6H	8.2	Solder Loop	TR202R	\$185.00
20-21VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR214R	\$275.00
20-21VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR218R	\$320.00
21-22VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR224R	\$275.00
21-22VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR228R	\$320.00
21-23VDC	0-500MA	2MV	3-1/4 x 3-1/4 x 4-5/8	6GG	3.0	Solder Loop	TR22P5R	\$110.00
21-23VDC	0-1AMP	2MV	3-1/4 x 4 x 5-15/16	6F	5.5	Solder Loop	TR221R	\$155.00
21-23VDC	0-2AMP	2MV	4-1/4 x 5 x 6-15/16	6H	8.3	Solder Loop	TR222R	\$185.00
22-23VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR234R	\$275.00
22-23VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR238R	\$320.00
23-24VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR244R	\$360.00
23-24VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR248R	\$305.00
23-25VDC	0-500MA	2MV	3-1/4 x 3-1/4 x 4-5/8	6GG	3.0	Solder Loop	TR24P5R	\$110.00
23-25VDC	0-1AMP	2MV	3-1/4 x 4 x 5-15/16	6F	5.5	Solder Loop	TR241R	\$155.00
23-25VDC	0-2AMP	2MV	4-1/4 x 5 x 6-15/16	6H	8.3	Solder Loop	TR24R	\$180.00
24-25VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR254R	\$280.00
24-25VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR258R	\$330.00
27-28VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR284R	\$280.00
27-28VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR288R	\$315.00
27-29VDC	0-500MA	2MV	3-1/4 x 3-1/4 x 4-5/8	6GG	3.0	Solder Loop	TR28P5R	\$110.00
27-29VDC	0-1AMP	2MV	3-1/4 x 4 x 5-15/16	6F	5.5	Solder Loop	TR281R	\$145.00
27-29VDC	0-2AMP	2MV	4-1/4 x 5 x 6-15/16	6H	8.3	Solder Loop	TR28R	\$175.00
28-29VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR294R	\$280.00
28-29VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR298R	\$330.00
29-30VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR304R	\$280.00
29-30VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR308R	\$330.00
29-31VDC	0-500MA	2MV	3-1/4 x 3-1/4 x 4-5/8	6GG	3.0	Solder Loop	TR30P5R	\$110.00
31-32VDC	0-4AMP	2MV	6-1/4 x 7-5/8 x 6-1/8	1A	13.4	Terminal Block	TR324R	\$280.00
31-32VDC	0-8AMP	2MV	10-1/2 x 7-1/2 x 6-5/8	1D	24.9	Terminal Block	TR328R	\$315.00
31-33VDC	0-500MA	2MV	3-1/4 x 3-1/4 x 4-5/8	6GG	3.0	Solder Loop	TR32P5R	\$110.00
31-33VDC	0-1AMP	2MV	3-1/4 x 4 x 5-15/16	6F	5.5	Solder Loop	TR321R	\$155.00
31-33VDC	0-2AMP	2MV	4-1/4 x 5 x 6-15/16	6H	8.3	Solder Loop	TR32R	\$185.00
150-160VDC	0-100MA	0.01%	3-1/16 x 3-9/16 x 6-3/4	6J	7.0	Octal Plug	TR150MA	\$130.00
200-210VDC	0-100MA	0.01%	3-7/8 x 3-7/8 x 6-3/4	6L	7.5	Octal Plug	TR200MA	\$140.00
250-260VDC	0-100MA	0.01%	4 x 4-11/16 x 6-13/16	6K	9.0	Octal Plug	TR250MA	\$160.00
300-310VDC	0-100MA	0.01%	4 x 4-11/16 x 6-13/16	6K	9.5	Octal Plug	TR300MA	\$175.00

†See Mechanical Data Pages 23, 24, 25

For Liberal
QUANTITY
DISCOUNTS
See Page 39

REGULATION 0.5%

- Compact, repairable modules
- Transformer type housings
- Wide range adjustable outputs
- Low ripple content, closely regulated

FEATURES

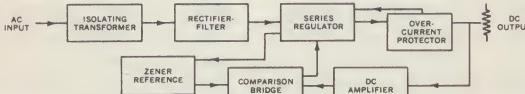
- Ungrounded outputs
- Load and short circuit protected
- Instant starting
- Small size, light weight
- Rugged long-life designs
- Moderately priced

**BOLD
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Listings
Avail. for
IMMED.
DELIVERY**

OUTPUT VOLTAGE (DC)	CURRENT (71°C)	RIPPLE (RMS)	SIZE W x D x H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
5-10VDC	0-200MA	0.05%	2-5/8 x 3-1/16 x 4-1/4	6A	2.7	Octal Plug	TR5A	\$70.00
10-20VDC	0-200MA	0.05%	2-5/8 x 3-1/16 x 4-1/4	6A	2.7	Octal Plug	TR10A	\$70.00
20-30VDC	0-150MA	0.05%	2-5/8 x 3-1/16 x 4-1/4	6A	2.7	Octal Plug	TR20A	\$75.00
30-40VDC	0-150MA	0.05%	2-5/8 x 3-1/16 x 4-1/4	6A	2.7	Octal Plug	TR30A	\$80.00
40-50 VDC	0-150MA	0.05%	2-5/8 x 3-1/16 x 4-1/4	6A	2.7	Octal Plug	TR40A	\$80.00
50-55VDC	0-150MA	0.05%	2-5/8 x 3-1/16 x 4-1/4	6A	2.7	Octal Plug	TR50A	\$80.00
100-110VDC	0-100MA	0.05%	2-5/8 x 3-1/16 x 4-1/4	6A	2.7	Octal Plug	TR100A	\$95.00

†See Mechanical Data Page 24

For Liberal
**QUANTITY
DISCOUNTS**
See Page 39

**SPECIFICATIONS**

Input: 105-125 VAC, 60-400 cps

DC output: See table

Ripple: Less than 0.05% RMS

Regulator type: Solid-state, germanium transistors, silicon diodes

Line regulation: Better than $\pm 0.5\%$ for full input change

Load regulation: Better than 0.5% for full load change

Voltage adjustment: External screw driver adjustment

Output polarity: Ungrounded outputs

Operating temperature: -20°C to $+55^{\circ}\text{C}$ (with external heat sinking or air blow)

Maximum case temperature: $+85^{\circ}\text{C}$

High Voltage AC to DC Modules

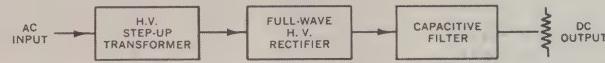
OUTPUTS
1500 through 15,000 VDC

UNREGULATED

Transpac High Voltage Modules provide low ripple high voltage DC outputs for standard AC line inputs. All units incorporate an isolation transformer and DC outputs may be operated ungrounded or either positive or negative terminals grounded. Full wave rectification with conservatively rated capacitive filtering is also used. All units are encapsulated and hermetically sealed which permits the units to be operated under conditions of high humidity or other extreme environmental conditions.

FEATURES

- Compact high voltage modules
- Encapsulated and hermetically sealed
- Full wave rectification
- Low internal impedance
- Ungrounded outputs
- Short circuit protected
- High breakdown characteristics
- Conservative, rugged designs



**BOLD
FACE
Listings
Avail. for
IMMED.
DELIVERY**

OUTPUT VOLTAGE (DC)	CURRENT (71°C)	RIPPLE (RMS)	SIZE W x D x H (INCHES)	CASE†	WEIGHT (LBS.)	CONNECTOR	MODEL	PRICE
1500VDC	0-1MA	0.5%	4 x 4 x 4-13/16	2E	6.4	HV TERMINALS	V1K5	\$80.00
1500VDC	0-2MA	1%	3-1/16 x 3-9/16 x 4-7/8	2D	4.2	HV TERMINALS	V1.5K/2	\$80.00
2400VDC	0-1.5MA	0.5%	4 x 4 x 4-13/16	2E	6.0	HV TERMINALS	V2K4	\$85.00
2500VDC	0-2MA	1%	3-1/16 x 3-9/16 x 4-7/8	2D	4.6	HV TERMINALS	V2.5K/2	\$90.00
5000VDC	0-2MA	1%	3-15/16 x 4-5/8 x 4-15/16	2B	8.0	HV TERMINALS	V5K/2	\$105.00
10000VDC	0-1MA	2%	3-15/16 x 4-5/8 x 4-15/16	2B	4.9	HV TERMINALS	V10K/1	\$125.00
15000VDC	0-1MA	2%	4-1/4 x 5 x 6-15/16	2C	5.3	HV TERMINALS	V15K/1	\$165.00

†See Mechanical Data Page 23

For Liberal
**QUANTITY
DISCOUNTS**
See Page 39

SPECIFICATIONS

Input: 115 VAC nom, 125 VAC max., 60-400 cps

DC output: See table

Ripple: See table

Rectifier type: Selenium rectifier, full wave rectification

Voltage adjustment: Fixed output specified within 5%

Output polarity: Ungrounded output

Breakdown voltage: Better than 130% of terminal voltage (RMS) to ground

Operating temperature: -20°C to $+55^{\circ}\text{C}$

Maximum case temperature: $+85^{\circ}\text{C}$

DUAL TRACKING

Dual Output Silicon DC Power Modules



71°C

FREE AIR
RATING

- Dual outputs, ± 12 through ± 15 VDC or ± 4 - 18 VDC
- Precision tracking
- Individual offset voltage adjustment
- All silicon
- 71°C free air rating

- No heat sinking or air blow required
- Fully repairable
- Automatic overcurrent protection
- Fast warm-up stabilization time
- Highly regulated
- Wide input range

The ultra-compact, highly regulated, all-silicon DV series Transpac incorporate two independent tracking power supplies which provide continuously adjustable outputs ± 12 - 15 VDC or ± 4 - 18 VDC with respect to a common center tap. Each output voltage may also be offset separately or used in series for enhanced voltage output.

These modules are completely isolated from the input by means of an input trans-

former with Faraday shield. Their unique mechanical design provides minimum size without excessive heating or loss of reliability. "DV" Transpac are particularly applicable for powering operational amplifiers, integrated circuitry and other electronic equipment where dual-polarity, proportional tracking voltages are required. The units are conservatively designed for reliable service under the most severe environmental and operational conditions.

FEATURES

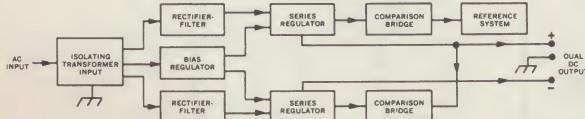
- Remote sensing
- Series operation
- Short circuit and transient protected
- "Worst case" specifications
- Low cost — exceptional value

STANDARD MODELS

All
Listed Models
Avail. for
Immed.
Delivery

OUTPUT VOLTAGE (DC)	CURRENT 71°C	SIZE W X D X H (INCHES)	CONNECTOR & SIZE DATA	WEIGHT (LBS.)	MODEL	PRICE
$\pm (4-18)$	0-60ma	2-15/32 x 3-27/32 x 3-3/4	11D	1.6	DV418	\$125.00
$\pm (12-15)$	0-60MA	2-1/4 x 3-15/32 x 3-3/4	11A	1.2	DV60	\$105.00
$\pm (12-15)$	0-500MA	3-3/16 x 4 x 5-1/8	11B	2.8	DV500	\$149.00
$\pm (12-15)$	0-1AMP	4 x 4-3/4 x 6-1/4	11C	3.9	DV1000	\$189.00

For Liberal
**QUANTITY
DISCOUNTS**
See Page 39



SPECIFICATIONS

Input: 105-125 VAC, 50-400 cps

Voltage Output: 12 through 15 VDC, \pm Dual

Current Rating: See table

Ripple: Less than 800 microvolts, RMS

Operating Temperature: -20°C to $+71^\circ\text{C}$

Line Regulation: Less than 0.05% or 5mv for full input change

Load Regulation: Less than 0.05% or 5mv for 0-100% load change

Transient Response: Less than 50 microseconds

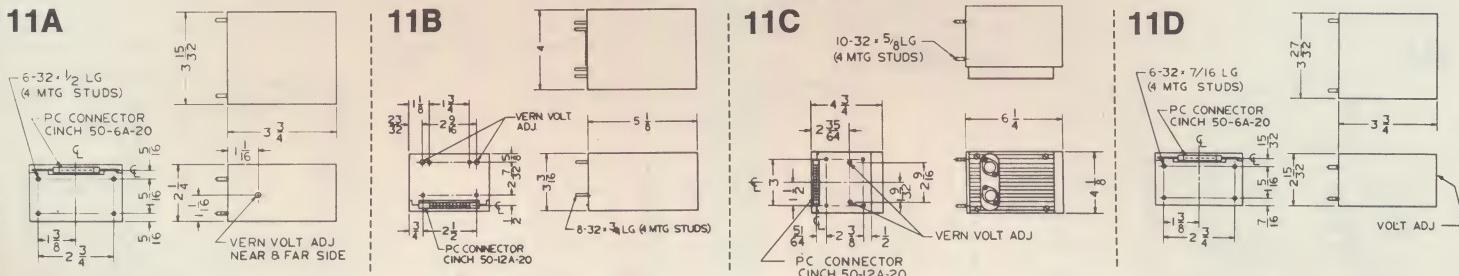
Long Term Stability: Within 5 millivolts or 0.02% (8 hours reference)

Temperature Coefficient: 0.02% per $^\circ\text{C}$

Heat Sinking: Internal, convection cooled

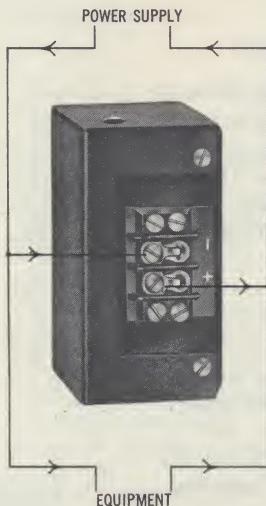
Maximum Allowable Case Temperature: 125°C

Connector & Size Data



Universal Solid State Over-Voltage Protector

VOLTAGE PROTECTOR



CONNECTS AT ANY LOCATION—PROTECTS AGAINST ALL TYPES OF OVER-VOLTAGE CONDITIONS

ERA Transpac "OV" over-voltage protectors are designed to protect electronic equipment against all types of over-voltage conditions. These units may be connected anywhere along the DC feed line, and offer complete over-voltage protection independent of the type of supply or method of transient generation.

ERA units are two-terminal designs which may be connected at any location and no external power source connection is required. Since the units monitor only the voltage impressed across the two-terminal input,

any type of power supply may be utilized including unregulated supplies, multiple supplies, or equipment with switching arrangements.

These protector units incorporate highly stable silicon SCR "crow bar" circuitry which places a protective short circuit across the input terminals within microseconds after the present voltage conditions are exceeded. Model OV448 is intended for industrial applications, Model OV448M is a militarized version utilizing military specification components, where applicable.

FEATURES

- Completely independent of connected supply or source
- Provides protection for all types of supplies regulated or unregulated
- Independent of type of power supply failure
- Protects against line inductive over-voltage transients
- Protects against power supply switching transients
- DC bus powered — no AC
- Connects at any location along supply, DC bus
- Two-terminal operation
- Self-powered-universal application
- Fast response time

- Low standby current
- Temperature compensated for stability
- Low shunt trip impedance
- Wide range — continuously adjustable trip point
- Available in industrial or military models

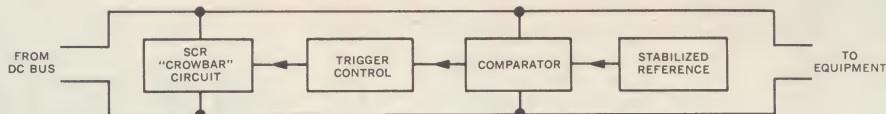
STANDARD MODELS

All
Listed Models
Avail. for
Immed.
Delivery

CURRENT RANGE	VOLTAGE RANGE	WEIGHT	SIZE (INCHES)	MODEL NUMBER	COST
0-8AMPS	4.5-40VDC	10 oz.	1-21/32 x 3-1/2 x 1-5/16	OV448	\$ 65.00
0-8AMPS	4.5-40VDC	10 oz.	1-21/32 x 3-1/2 x 1-5/16	OV448M*	\$105.00

*Military Component Type. Incorporates Mil Specification Parts where applicable.

For Liberal
**QUANTITY
DISCOUNTS**
See Page 39



SPECIFICATIONS

Trip Voltage Range: 4.5 to 40 VDC

Trip Point Setting: Within 500 millivolts or 5% above output whichever is greater

Shunt Impedance, Tripped: Less than 10 milliohms

Response: Within 10 microseconds after exceeding trip voltage

Maximum Allowable Shunt Current (Peak): 200 amperes for 16 microseconds

Maximum Shunt Current (Continuous): 10 amperes

Resolution: Within 100 millivolts of trip point setting

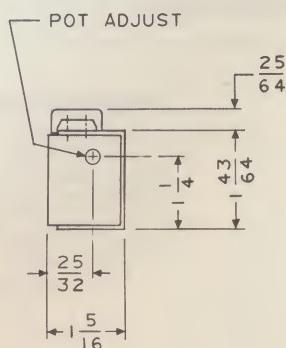
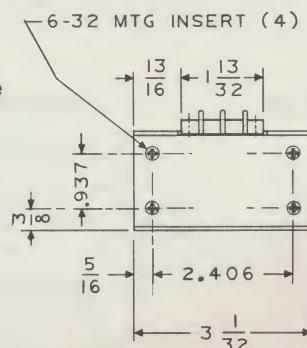
Operating Temperature Range: -40°C to +71°C

Type: Two-terminal

Standby Current: 30 milliamperes max.

Temperature Coefficient: 6 millivolts/°C or 0.07%/°C, whichever is greater

Connector & Size Data



Transpac Solid State Inverters

CONVERT LOW VOLTAGE DC TO
LINE VOLTAGE AC. ALSO HIGH-SURGE MODELS

ERA Transpac Inverters convert low voltage DC into higher voltage AC. Solid-state designs provide minimum operating maintenance, high shock and vibration resistance, high conversion efficiency and stable, trouble-free, long-life operation.

Units incorporate all advanced features

including overload and transient protection, self-starting networks, reverse polarity protection, and MOPA designs where applicable.

High surge types use MOPA designs which provide for high peak power for motor starting, lamp powering, and other high surge applications.

AC POWER FOR

- Laboratory Equipment
- Industrial Equipment
- Portable Equipment
- Military Equipment
- Motor Starting
- Incandescent Lamps
- Capacitor Charging
- Compressor Systems

- All Solid-State Designs
- Lightweight
- Small Size
- High Shock and Vibration Resistance

FEATURES

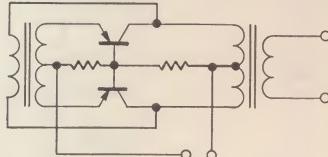
- Minimum Operating Maintenance
- High Conversion Efficiency
- Instant Starting
- Negligible Radio Interference
- Stable, Long-Life Operation

For Liberal
QUANTITY
DISCOUNTS
See Page 39

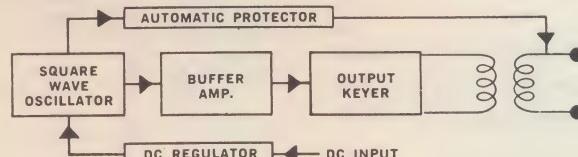
	FREQ. OUTPUT	POWER OUTPUT	INPUT VDC	SIZE W X D X H (INCHES)	CASE	OUTPUT VAC	WT. LBS.	CONNECTOR	MODEL	PRICE
UNREGULATED SQUARE WAVE OUTPUT	60CPS	15VA	5-7VDC	2-5/8 x 3-1/16 x 4-1/2	14A	115VAC	2.5	Solder Loop	IT616B	\$ 80.00
	60CPS	25VA	10-14VDC	3-1/16 x 3-9/16 x 4-7/8	14B	115VAC	4.0	Solder Loop	IT126B	\$ 90.00
	60CPS	50VA	19-29VDC	3-7/8 x 3-7/8 x 4-3/4	14C	115VAC	5.5	Solder Loop	IT256B	\$105.00
	60CPS	100VA	19-29VDC	3-1/4 x 4 x 5-15/16	14D	115VAC	6.5	Solder Loop	IT2106B	\$115.00
	400CPS	15VA	5-7VDC	2-3/8 x 2-3/4 x 3-13/16	14E	115VAC	1.6	Solder Loop	IT614B	\$ 80.00
	400CPS	25VA	10-14VDC	2-5/8 x 3-1/16 x 4-1/2	14A	115VAC	2.6	Solder Loop	IT124B	\$ 90.00
REGULATED SQUARE WAVE OUTPUT	400CPS	50VA	19-29VDC	3-1/16 x 3-9/16 x 4-7/8	14B	115VAC	4.0	Solder Loop	IT254B	\$105.00
	400CPS	100VA	19-29VDC	3-1/4 x 4 x 5-15/16	14D	115VAC	6.5	Solder Loop	IT2104B	\$125.00
	60CPS	50VA	20-29VDC	5-1/2 x 6-1/16 x 6-5/32	14F	115VAC	11.0	Terminal Blk.	IT256SB	\$195.00
	60CPS	100VA	20-29VDC	5-1/2 x 6-1/16 x 6-5/32	14F	115VAC	11.0	Terminal Blk.	IT2106SB	\$245.00
	60CPS	250VA	10-14VDC	6-1/8 x 5-15/16 x 6-1/2	14N	115VAC	15.0	Terminal Blk.	IT2256SB(12)	\$255.00
	60CPS	250VA	19-29VDC	6-1/8 x 5-15/16 x 6-1/2	14N	115VAC	15.0	Terminal Blk.	IT2256SB(24)	\$265.00
REGULATED SINE WAVE OUTPUT	60CPS	500VA	10-14VDC	7-13/32 x 9 x 6-3/16	14H	115VAC	28.0	Terminal Blk.	IT2506SB(12)	\$280.00
	60CPS	500VA	19-29VDC	7-13/32 x 9 x 6-3/16	14H	115VAC	28.0	Terminal Blk.	IT2506SB(24)	\$290.00
	400CPS	50VA	20-29VDC	6-1/8 x 5-15/16 x 6-1/2	14N	115VAC	13.0	Terminal Blk.	IT254SB	\$205.00
	400CPS	100VA	20-29VDC	6-1/8 x 5-15/16 x 6-1/2	14N	115VAC	7.0	Terminal Blk.	IT2104SB	\$230.00
	400CPS	250VA	20-29VDC	6-1/8 x 5-15/16 x 6-1/2	14N	115VAC	10.0	Terminal Blk.	IT2254SB	\$270.00
	400CPS	50VA	20-29VDC	7-13/32 x 9 x 6-3/16	14L	115VAC	28.0	Terminal Blk.	IT2504SB	\$335.00
HIGH SURGE INVERTERS	60CPS	50VA	26-29VDC	6-1/8 x 5-15/16 x 6-1/2	14G	115VAC	10.5	Terminal Blk.	IT256RS	\$235.00
	60CPS	100VA	26-29VDC	7-13/32 x 9 x 6-3/16	14M	115VAC	16.0	Terminal Blk.	IT2106RS	\$260.00
	60CPS	250VA	26-29VDC	12 x 9 x 8	14J	115VAC	35.0	Terminal Blk.	IT2256RS	\$340.00
	400CPS	50VA	26-29VDC	6-1/8 x 5-15/16 x 6-1/2	14G	115VAC	8.0	Terminal Blk.	IT254RS	\$240.00
	400CPS	100VA	26-29VDC	7-13/32 x 9 x 6-3/16	14L	115VAC	16.0	Terminal Blk.	IT2104RS	\$275.00
	400CPS	250VA	26-29VDC	12 x 9 x 8	14J	115VAC	35.0	Terminal Blk.	IT2254RS	\$365.00
HIGH SURGE INVERTERS	60CPS	250VA	11-13VDC	11-1/8 x 11-3/4 x 5-13/32	14K	115VAC	23.0	Terminal Blk.	IR250(12)	\$255.00
	60CPS	500VA	11-13VDC	11-1/8 x 11-3/4 x 5-19/32	14K	115VAC	23.0	Terminal Blk.	IR500	\$325.00

†See Mechanical Data Page 29

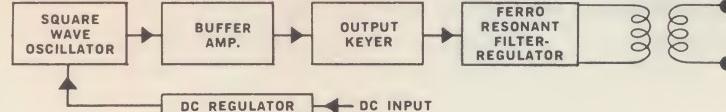
1. Unregulated Square Wave Types



2. Regulated Square Wave Types

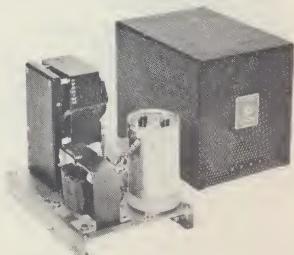


3. Regulated Sine Wave Types



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Transpac Solid State Frequency Changers



CONVERTS FREQUENCY FOR LAB, MILITARY OR INDUSTRIAL APPLICATIONS

Transpac solid-state frequency changers convert AC of a given frequency into the desired output frequency at power levels. These solid-state units comprise an AC to DC input module coupled to a standard Transpac DC to AC inverter. The resulting package converts any 115 VAC (nom.) input source in the range 50 cps through 1000 cps to a 115 VAC (nom.) output at 60 cps or

400 cps with the choice of unregulated, square-wave-regulated, or sinusoidal-regulated operation.

These Transpac units eliminate the disadvantages of vacuum tube or mechanical converters and are ideally suited for powering all types of AC operated equipment and for all laboratory, military or industrial applications.

FEATURES

AC POWER FOR

- Laboratory Equipment
- Industrial Equipment
- Portable Equipment
- Military Equipment
- Motor Starting
- Incandescent Lamps
- Capacitor Charging
- Compressor Systems

- All Solid-State Designs
- Lightweight
- Small Size
- High Shock and Vibration Resistance

- Minimum Operating Maintenance
- High Conversion Efficiency
- Instant Starting
- Negligible Radio Interference
- Stable, Long-Life Operation

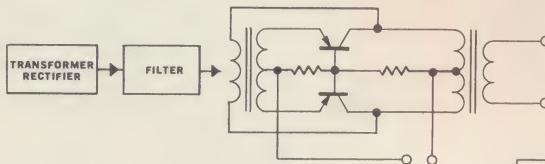
For Liberal
QUANTITY
See Page 39

	FREQUENCY OUTPUT	POWER OUTPUT	SIZE W x D x H (INCHES)	CASE	WEIGHT (LBS.)	MODEL	PRICE
UNREGULATED SQUARE WAVE OUTPUT	60CPS	25VA	6-1/4 x 8-15/16 x 7-1/4	15A	14	FC256U	\$175.00
	60CPS	50VA	6-1/4 x 8-15/16 x 7-1/4	15A	14	FC506U	\$185.00
	60CPS	100VA	6-1/4 x 8-15/16 x 7-1/4	15A	15	FC1006U	\$195.00
	400CPS	25VA	6-1/4 x 8-15/16 x 7-1/4	15A	13	FC254U	\$185.00
	400CPS	50VA	6-1/4 x 8-15/16 x 7-1/4	15A	14	FC504U	\$195.00
	400CPS	100VA	6-1/4 x 8-15/16 x 7-1/4	15A	16	FC1004U	\$215.00
REGULATED SQUARE WAVE OUTPUT	60CPS	50VA	6-1/4 x 11-1/8 x 7-5/8	15B	22	FC506SB	\$310.00
	60CPS	100VA	6-1/4 x 14-1/2 x 7-3/4	15C	38	FC1006SB	\$370.00
	60CPS	250VA	6-1/4 x 14-1/2 x 7-3/4	15J	41	FC2506SB	\$395.00
	60CPS	500VA	9-3/16 x 13-13/16 x 7-5/8	15K	65	FC5006SB	\$450.00
	400CPS	50VA	6-1/4 x 11-1/8 x 7-5/8	15G	23	FC504SB	\$320.00
	400CPS	100VA	6-1/4 x 14-1/2 x 7-3/4	15J	34	FC1004SB	\$355.00
	400CPS	250VA	6-1/4 x 14-1/2 x 7-3/4	15J	42	FC2504SB	\$395.00
	400CPS	500VA	9-3/16 x 13-13/16 x 7-5/8	15D	57	FC5004SB	\$480.00
REGULATED SINE WAVE OUTPUT	60CPS	50VA	6-1/4 x 14-1/2 x 7-3/4	15H	36.5	FC506RS	\$365.00
	60CPS	100VA	9-3/16 x 13-13/16 x 7-3/4	15E	42	FC1006RS	\$405.00
	60CPS	250VA	9-3/16 x 18-3/8 x 7-3/4	15F	73	FC2506RS	\$485.00
	400CPS	50VA	6-1/4 x 14-1/2 x 7-3/4	15H	44	FC504RS	\$375.00
	400CPS	100VA	9-3/16 x 13-13/16 x 7-3/4	15E	55	FC1004RS	\$415.00
	400CPS	250VA	9-3/16 x 18-3/8 x 7-3/4	15F	66	FC2504RS	\$510.00

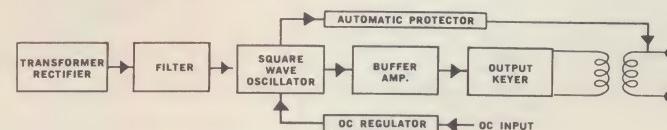
†See Mechanical Data Page 31

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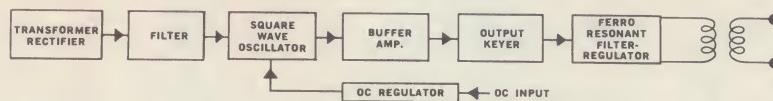
1. Unregulated Square Wave Types



2. Regulated Square Wave Types



3. Regulated Sine Wave Types



REGULATED
(Sine Wave) FC-RS Types

Input 105-125 VAC, 50-1000 cps.
Output 105, 115, 125 VAC RMS at listed frequency.
Sinusoidal waveform, distortion approximately 7% RMS
MOPA designs utilize stabilized oscillator and isolating power amplifier
Incorporates transistor-magnetic regulator for load voltage regulation
Frequency regulation within $\pm 1\%$ for full input change or 0-100% load change
Voltage regulation less than $\pm 1\%$ for full input change or less than 6% for 0-100% load change
Unit can be synchronized or driven by external frequency source

SPECIFICATIONS

UNREGULATED
(Square Wave) FC-U Types

Input 105-125 VAC, 50-1000 cps.
Output 105, 115, 125 VAC RMS at listed frequency.
Waveform approximately square wave
Self-excited designs with isolating feed-back transformers
Output voltage and frequency varies proportionately to input voltage
Voltage regulation within 6% and frequency regulation with $\pm 2\%$ for 50-100% load change.
Unit can be synchronized by external source
Outputs ungrounded (All types)

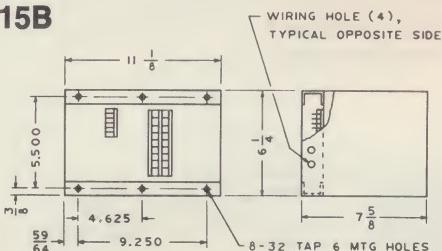
REGULATED
(Square Wave) FC-SB Types

Input 105-125 VAC, 50-1000 cps.
Output 105, 115, 125 VAC RMS at listed frequency.
Waveform approximately square wave
MOPA design using stabilized oscillator and isolating power amplifier
Output voltage varies proportionately to input voltage change
Output frequency regulation within 1% for full input change or 0-100% load change
Voltage regulation within approximately 5% for 50-100% load change
Unit can be synchronized or driven by external source
Outputs ungrounded (All types)

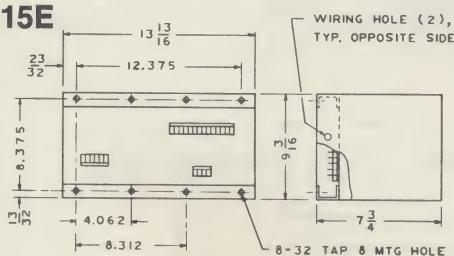
Connector & Size Data

Drawings listed in this section correspond to the case references supplied in the previous page. Note that dimensions given are in inches. Tolerances for fractional dimensions are $\pm 1/32$. Decimal fraction tolerance is 0.015. Mating connectors, where applicable, are illustrated in the drawing. Refer to the ERA specific model number outline drawing for data on materials and finishes.

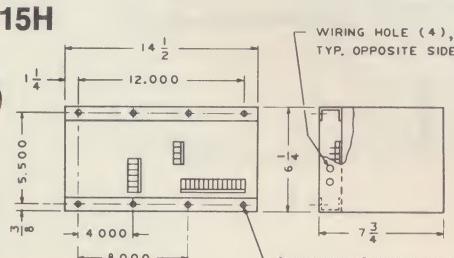
15B



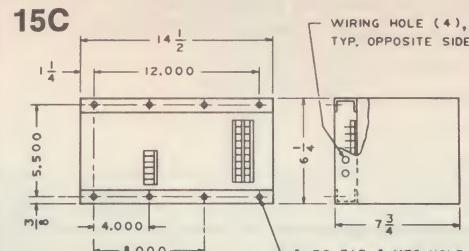
15E



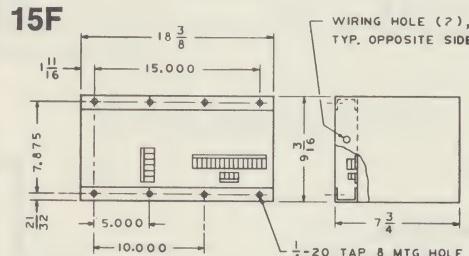
15H



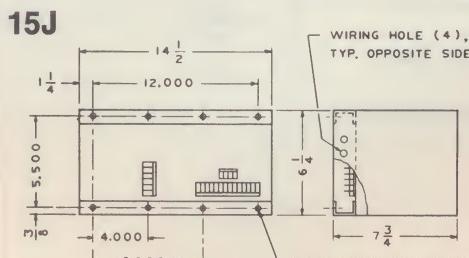
15C



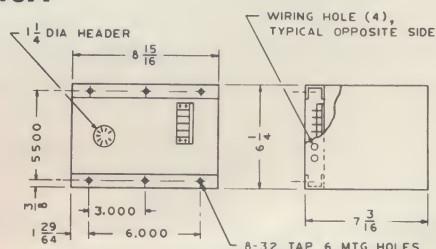
15F



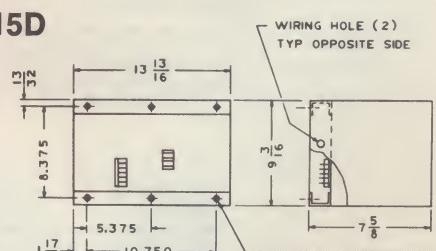
15J



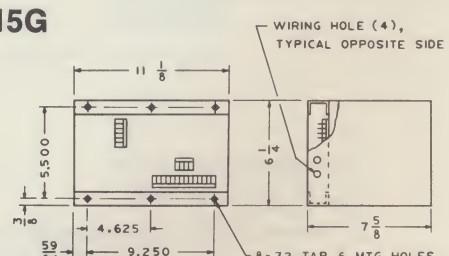
15A



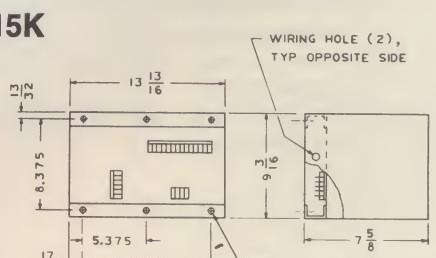
15D



15G

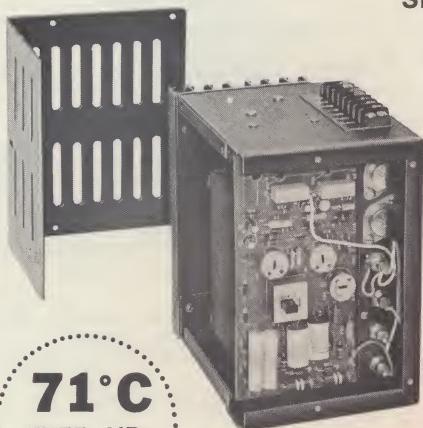


15K



AC REGULATOR

Solid-State Sinusoidal, AC Regulators



SINUSOIDAL, FAST-ACTING, WIDE RANGE

Transpac RT modular AC regulators are all solid-state designs for incorporation into equipment or for external and bench use. Special circuitry permits fast-acting RMS regulation independent of input frequency, and provides sinusoidal output. RT units are highly efficient, require minimum no-load current and operate over a wide range of load power factors.

A unique method of electrical and mechanical design provides substantial size and weight savings, and efficient internal heat sinking permits operation up to 71°C without air blow or additional external heat sinks. Overload and short circuit protection is also incorporated and the units will automatically reset upon removal of the overload conditions.

Transpac AC Regulators are fully repairable and components are easily accessible for replacement or servicing. Silicon semiconductors are employed throughout including silicon rectifiers, differential amplifiers and temperature compensated references.

All models are completely isolated from the AC input by means of an input transformer. Each model incorporates remote sensing provisions as well as means for remote control of the output voltage. Operation is cool and quiet and there are no extraneous magnetic fields or RFI.

FEATURES

- Sinusoidal output
- Fast acting, precision RMS regulation
- All silicon solid-state modular designs
- Minimum magnetic field or RFI
- Wide input range 47-440 cps
- Fast response characteristics
- Negligible no-load power
- Wide load power factor range
- High-surge power capability
- Remote sensing, remote voltage control
- Overload and short-circuit protected
- Automatic reset
- High efficiency, unity input power factor
- Wide operating temperature range
- 71°C free air rating
- Low temperature coefficient
- Fully repairable
- Silent operation

POWER RATING	SIZE W x D x H (INCHES)	CASE†	WEIGHT (LBS.)	MODEL	PRICE
250 VA	6-5/16 x 7-1/4 x 4-7/8	12A	13	RT250	\$130.00
500 VA	6-7/8 x 8-7/8 x 7-1/2	12B	17	RT500	\$175.00
1000 VA	7-13/16 x 9-15/16 x 7-5/8	12C	22	RT1000	\$235.00

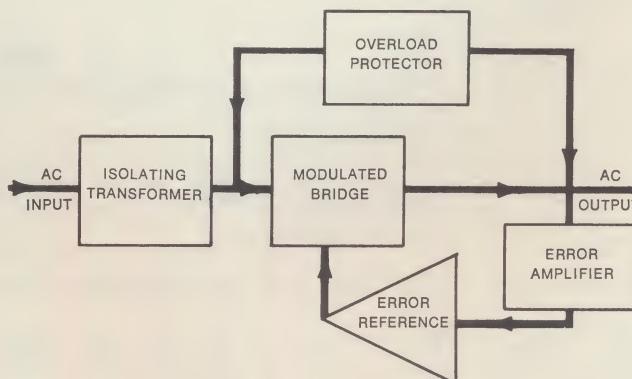
†See Mechanical Data Page 33.

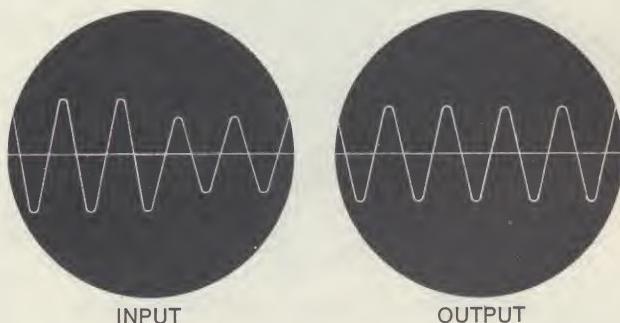
Other designs available on order. Write for quotations.

All
Listed Models
Avail. for
Immed.
Delivery

Transpac Sinusoidal AC Regulators will:

- Provide highly RMS-regulated sinusoidal output
- Operate over a wide range of AC inputs and frequencies
- Run cool and quiet with no distorted magnetic field interference
- Operate over a wide range of leading or lagging power factors
- Provide modular AC Regulator for end-equipment or bench use





Representative input-output wave-forms

TYPICAL APPLICATIONS

- MEASUREMENT EQUIPMENT
- ELECTRONIC EQUIPMENT
- REFERENCE & CALIBRATION EQUIPMENT
- ELECTRICAL SYSTEMS
- PHOTOMETRY
- MOTOR STARTING & CONTROL
- AC TRANSIENT SUPPRESSION
- POWER EQUALIZATION
- LIGHTING
- HEATING
- ANY RMS APPLICATION

SPECIFICATIONS

Input: 105-130 VAC, 47-440 cps

Output: 115 VAC nom (see table for power rating)

Line Regulation: (RMS) within $\pm 0.1\%$ for full input change, resistive load or within $\pm 0.2\%$ for +0.7 to -0.7 PF load.

Line Regulation: (AV) less than $\pm 0.7\%$ full input change and +0.7 through -0.7 PF load

Load Regulation: (RMS) Within 0.2% for full load change resistive, or within 0.5% for +0.7 to -0.7 PF load

Load Regulation: (AV) Less than 0.2% for full load change and +0.7 through -0.7 load PF change

Frequency Regulation: Less than 0.002% per cycle

Wave Form Distortion: Less than 5% (115 VAC input, unity through 0.7 PF load)

Efficiency: Better than 75%, rated load, 115 VAC input

No-Load Power: Less than 10% full load power, 115 VAC input

Load Power Factor Range: +0.7 PF through -0.7 PF

Response Time: Less than 16 millisec.

Temperature Coefficient: Less than 0.01% per degree C.

Overload Protection: Cut out at approximately twice rating

Surge Output Rating: Four times rating for 10 seconds

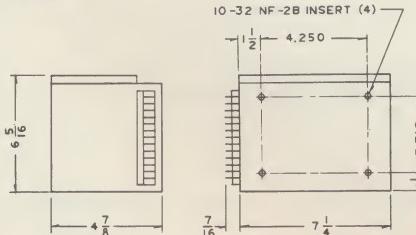
Remote Sensing Input: Approximately 75 mw (2.5 v @ 30 ma)

Operating Temperature: -20°C to +71° free air, full ratings

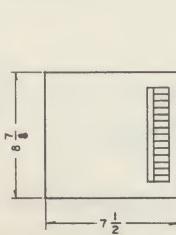
Heat Sinking: internal, convection cooled

CONNECTION & SIZE DATA

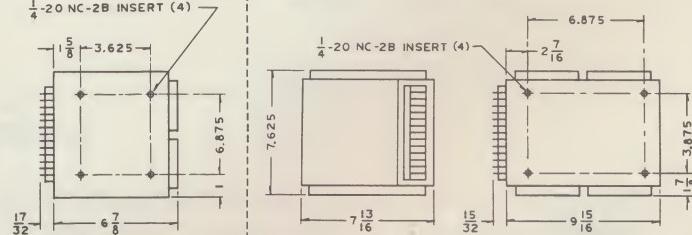
12A



12B



12C

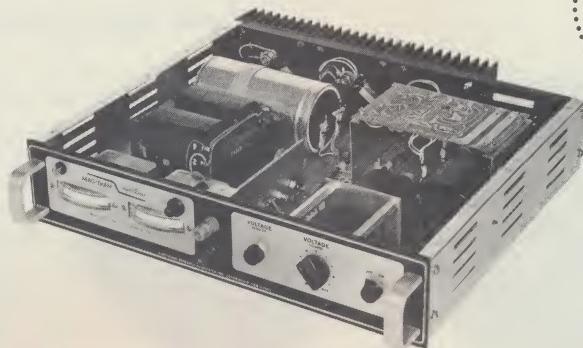


Solid State: Full Range Silicon Series

HIGH CURRENT, HIGH STABILITY, HIGH TEMPERATURE

Engineered for optimum performance, these units are ideally suited for incorporation into end equipment as well as for laboratory, test or system applications. The Magitran Silicon "SL" series variable power supplies are solid-state high current designs providing a continuously adjustable, closely regulated wide range output. A particular feature of these supplies is the incorporation of silicon semiconductors for maximum stability, maximum protection against overloads and surges, and stable operation at extended temperatures.

Additional features include the use of differential DC silicon transistor amplifiers, compensated silicon zener references, silicon rectifiers, non-inductive filtering and conservatively rated semiconductors and components. Incorporated is an electronic current limiter with automatic recovery. Excessive voltages are also automatically re-



65°C
FREE AIR
RATING

moved from all semiconductors during abnormal operating conditions. All models are isolated from the AC input and DC outputs are ungrounded. There is provision for remote sensing and also units may be connected in series or parallel without the use of special circuitry.

FEATURES

- All-Silicon Design
- Low Cost for all Systems Applications
- Long Term Stability Less Than 8 MV
- Current Ranges up to 25 Amps
- Continuously Adjustable 0 to 36 VDC
- Operating Temperature to +65°C
- Temperature Coefficient Less Than 0.01% /°C
- Closely Regulated
- Low Ripple Content
- Automatic Short Circuit Protection
- No Fuses or Circuit Breakers to Reset
- Automatic Overload Protection
- Series or Parallel Operation
- Remote Sensing
- Ungrounded Outputs
- Convection Cooled
- Functional Design — Easily Serviceable
- Minimum Size and Weight
- Front and Rear Terminals
- Relay Rack or Bench Mounting
- Removable Panel Mounts
- Removable Power Cord
- Extended Warranty

BOLD
FACE
Listings
Avail. for
IMMED.
DELIVERY

VOLTAGE	CURRENT	MODEL	PRICE
0-36VDC	0-2AMP	SL36-2M	\$235.00
0-36VDC DUAL	0-2AMP DUAL	SL36-2/2M	\$465.00
0-36VDC	0-4AMP	SL36-4M	\$290.00
0-36VDC	0-8AMP	SL36-8M	\$355.00
0-36VDC	0-12AMP	SL36-12M	\$455.00
0-36VDC	0-25AMP	SL36-25M	\$650.00
0-60VDC	0-1AMP	SL60-1M	\$220.00
0-60VDC	0-1AMP	SL601-2M	\$440.00

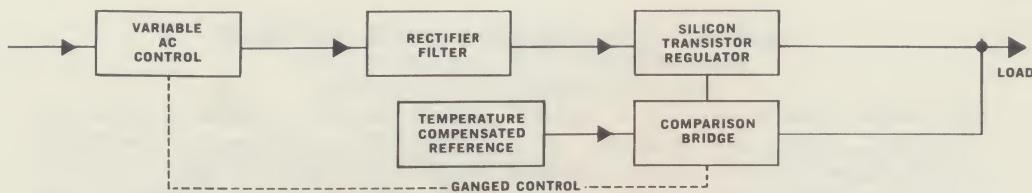
Discounts for quantity orders. Special designs made to customer's specifications. Write for details.

ACCESSORIES

Shaft Lock: For locking controls. Add \$10.00 and suffix "S".
Screwdriver Adjustment Controls: (In place of knobs) add \$5.00 and suffix "A".

Chassis Slides: Price dependent on customer requirements.
Add suffix "C".

All prices subject to change without notice.



GENERAL SPECIFICATIONS

Input Voltage Range: 105-125 VAC**Input Frequency Range:** 50-400 cps**Regulation Line:** $\pm 0.01\%$ or 5 mv**Regulation Load:** 0.05% or 8 mv ^①**Long Term Stability:** Less than 8 mv, constant line, load and temperature**Ripple:** Less than 1 mv, RMS**Transient Response:** Less than 50 μ sec**Operating Temperature:** -20°C to $+65^{\circ}\text{C}$ ^②**Temperature Coefficient:** $0.01\%/\text{ }^{\circ}\text{C}$ or 3 mv**Output Terminals (Ungrounded):** Location, front and rear**Cooling:** Convection**Metering:** Separate Current and Voltage Meters**Programming Constant (SL601-2M, SL60-1M only):**

500 Ohms per volt

Short Circuit Protection with automatic recovery

Automatic Overload Recovery

Remote Sensing

Parallel and Series Operation

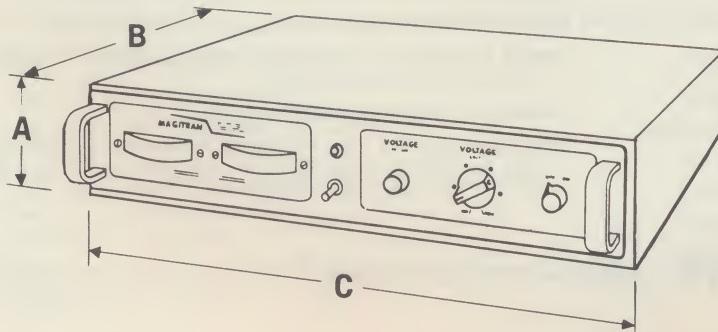
Vernier Voltage Control

Reverse Voltage Protection

^① SL60-1M and 2M Models, Load Reg: 0.02% or 5 mv.
^② SL60-1M and 2M Models, Temperature Range: -20°C to $+71^{\circ}\text{C}$.



Separate Power Cord and Separate Mounting Brackets for Mounting Versatility.



CASE SIZES (Inches)

	A	B	C
SL36-2M	3-1/2	15-7/8	7-1/2
SL36-2/2M	3-1/2	15-7/8	17
SL36-4M	3-1/2	15-7/8	17
SL36-8M	5-1/4	15-7/8	17
SL36-12M	7	15-7/8	17
SL36-25M	10-1/2	15-7/8	17
SL60-1M	3-1/2	15-7/8	7-1/2
SL601-2M	3-1/2	15-7/8	17

Compact All-Purpose Solid State DC Supply

COMPACT SIZE, PRECISION SPECS, LOW PRICE

The model TRO40M provides a highly regulated, continuously adjustable DC output. There is a vernier voltage control which permits accurate adjustment to any voltage in the output range. Outputs are isolated and either terminal may be grounded for positive or negative output. In addition to constant voltage output, operation in the constant current mode is available. There is provision for remote programming and remote sensing.

A unique current limiter protects

against transient overloads and short circuits while at the same time permitting capacitor charging or pulse powering. Other features include the use of temperature compensated zener references, low drift differential amplifiers and advanced regulator circuitry. All components are fully accessible for ease of maintenance. Multiple units may be "stacked" for higher voltages or connected in parallel for higher current output or "slave-master" operation.

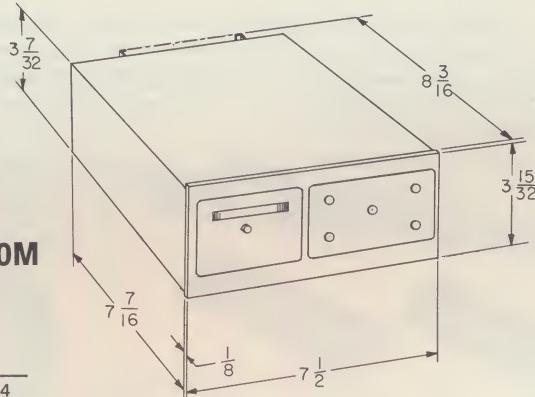
FEATURES

- Precision Engineered at Low Cost
- Compact, Lightweight
- Highly Stable
- Tight Regulation
- Low Ripple Content
- Constant Current Operation
- Short Circuit Proof — Automatic Recovery
- Automatic Current Limiting
- Vernier Control for Fine Adjustment
- Remote Programming Provision
- Remote Sensing Provision
- Isolated Outputs
- Fully Repairable
- For Laboratory or System Use



MODEL TRO40M
\$130.00

Output Voltage	Output Current	Size (in.)
0-40VDC	0-500MA	3-1/2 x 7-1/2 x 8-1/4



SPECIFICATIONS

Input: 105-125 VAC, 50-1000 cps

Output: 0-40 VDC at 0-500 ma

Line Regulation: Within $\pm 0.015\%$ or 5 mv, whichever is greater

Load Regulation: Within 0.03% or 5 mv, whichever is greater for 0-100% load change

Ripple: Less than 800 μ V RMS

Operating Temp. Range: -20°C to $+55^{\circ}\text{C}$ free air, full rating

Constant Current Operation: 0-500 ma

Remote Programming Constant: 500 ohms per volt

Remote Sensing: Connections provided

Short Circuit Protection: Automatic current limiting

Thermal Protection: Automatic thermostat operation

Series or Parallel Operation: Connections provided

Output Terminals: Ungrounded, either positive or negative terminals may be grounded

Cooling: Internal convection-cooled

Panel Size: 3 1/2" x 7 1/2" (designed for bench or half relay rack mounting. Two units may be mounted side-by-side in a 19" standard rack dimension for dual outputs.)

Relay Rack Mounting Kit — (single or dual mtg., no charge.)

Silicon/Hybrid Wide Range High-Voltage Supply

HV
LAB

HIGH STABILITY, HIGH TEMPERATURE OPERATION AT MODERATE COST

ERA precision-regulated high voltage DC power sources combine the high voltage capacity of vacuum tubes with advanced semi-conductor techniques. Design features include the use of differential DC silicon amplifiers, compensated silicon zener references, silicon rectifiers, and conservatively rated components. High voltages developed within the unit are efficiently handled by vacuum tube circuitry. The unit is completely protected against external short circuits or internal arc-over. The unit provides either positive or negative grounded output and accurately calibrated voltages can be obtained via the front panel controls.

ERA's unique mechanical design provides full protection to the operator while at the same time permitting simplified servicing or replacement of all transistors and other components. Units are designed for either bench or 19" rack mounting.

These hybrid silicon/vacuum tube units are designed for long-life trouble-free operation in all high voltage applications, either in original equipment or for general laboratory and industrial use.

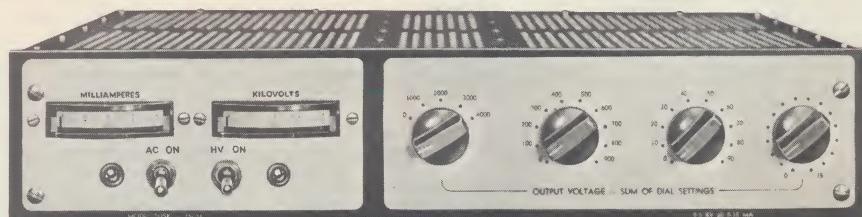
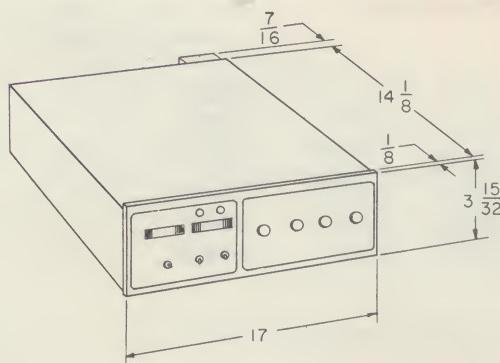
FEATURES

- New Hybrid Solid-State/Vacuum Tube Designs
- All Silicon Semi-conductors
- High Stability, High Temperature Performance
- Closely Regulated
- Low Ripple Content
- Wide Range Adjustable Output

- Fast Transient Response
- Accurate Calibration and Resolution
- Overload, Short Circuit, Transient Protected
- Compact Space-Saving Designs
- Precision Engineered
- Moderately Priced

APPLICATIONS

- Cathode Ray Indicators
- Klystron, Traveling Wave Tubes
- Microwave and Laser Equipment
- Geiger, Scintillation Counters
- Dielectric Testing
- Electron Accelerators
- Corona, Plasma Discharges
- Electro-Static Deposition
- All HV Laboratory and Equipment Applications



Output Voltage	Output Current	Size (in.)
0-5000VDC	0-15MA	3-1/2" x 17 x 15-1/8"

MODEL HV15KM
\$435.00

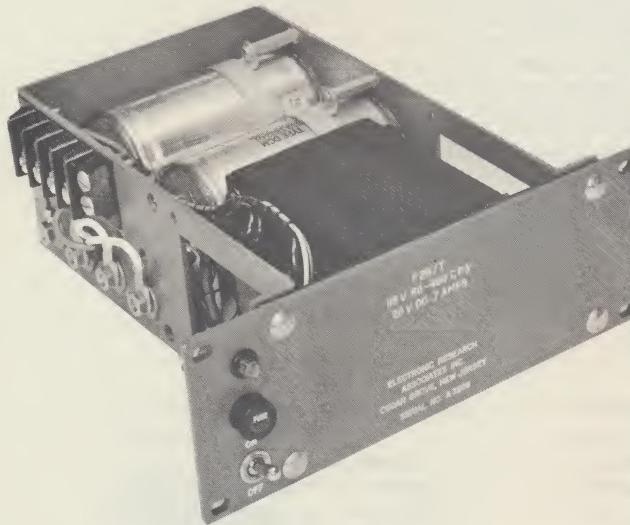
GENERAL SPECIFICATIONS

- Input:** 105-125 VAC, 50-400 cps
Output: 0-5 KV DC at 0-15 ma
Line and Load Regulation: 0.01% or 50 mv, whichever is greater
Ripple (RMS): 0.0001% or 5 mv whichever is greater
Temperature Coefficient: 0.01% /°C or 10 mv /°C, whichever is greater
Long Term Stability: Less than 25 mv, constant line, load and temperature (8 hours)

- Transient Response:** Less than 50 microseconds
Operating Temperature: 0°C to 50°C
Output Polarity: Either positive or negative grounding
Metering: Voltage/Current meter
Cooling: Convection
Physical: Bench or relay rack mounting
Panel Size: 3 1/2" x 17"

High Current: Solid State Non-Regulated DC Supplies

RUGGED, RELIABLE SOURCE OF DC POWER



ERA High-Current Silicon non-regulated power supplies feature silicon rectifiers in full wave rectifier circuitry plus high efficiency filtering. The units are compact, designed to fit in one half relay rack dimensions. Two may be mounted side-by-side for 19" relay rack mounting and special ERA design permits full accessibility to all components for easy maintenance.

Maximum temperature rating at rated outputs corresponds to 55°C for free-air operation. Higher temperature operation may be attained with external heat sinking, air blow, or derating. Isolation from the line input is provided by a step down transformer with high voltage insulation in excess of 500 volts to provide reliable operation in ungrounded circuitry. RC filtering is used incorporating computer grade electrolytic capacitances.

Terminals for AC input and DC output are provided at the rear of the unit. Output DC terminals are ungrounded and either the positive or negative terminals may be grounded or the unit may be operated "floating" with respect to ground. The front panel incorporates an on-off switch and pilot light.

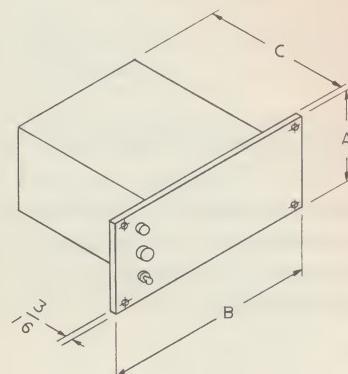
Special designs also supplied to meet military or other special requirements.

FEATURES

- Compact Low Cost Designs
- Line Isolated
- Full Wave Silicon Rectification
- Computer Grade Capacitance Filtering
- Ungrounded Outputs
- Low Internal Impedance
- Module or Rack Mounting
- Rugged Long-Life Design

OUTPUT VDC	OUTPUT CURRENT	PANEL SIZE W x D x H (INCHES)	MODEL	PRICE
28VDC	5AMP	3-1/2 x 9-1/2 x 7-3/16	F28/5	\$105.00
28VDC	7AMP	3-1/2 x 9-1/2 x 9-3/4	F28/7	\$115.00
28VDC	10AMP	3-1/2 x 9-1/2 x 9-3/4	F28/10	\$155.00
28VDC	20AMP	5-1/4 x 9-1/2 x 14-3/4	F28/20	\$190.00
28VDC	40AMP	7 x 9-1/2 x 14-3/4	F28/40	\$260.00

**BOLD
FACE**
Listings
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**IMMED.
DELIVERY**



CASE SIZES (Inches)

MODEL	A	B	C
F28/5	3-1/2	9-1/2	7-5/16
F28/7	3-1/2	9-1/2	9-7/8
F28/10	3-1/2	9-1/2	9-3/4
F28/20	5-1/4	9-1/2	15-3/8
F28/40	7	9-1/2	15-1/2

SPECIFICATIONS *

Input: 115 VAC, 50-400 cps

Ripple: Less than 1 volt RMS

Internal Impedance: 0.6 to 0.06 ohms

(5 amp to 40 amp models)

*Units specified at 60 cps input.

Ordering and Related Information



DISCOUNT SCHEDULE:

QUANTITY	DISCOUNT
1-4	Net
5-14	Less 5%
15-24	Less 10%
25-49	Less 12%

Above discounts also applicable to mixed types for quantities of 10 or more.

Special liberal discounts for larger quantity orders. Write stating quantity.

STANDARD WARRANTY

We warrant each product manufactured by us to be free from defects in materials or workmanship (excluding tubes, transistors and semi-conductors, for which the original manufacturers warranty, if available, will be applicable). Our obligation under this warranty being limited to repairing or replacing any product or part thereof which shall within one year after delivery to the original purchaser be authorized to be returned to

us, transportation prepaid, prove after our examination to be thus defective.

We reserve the right to discontinue products without notice and to make modifications in design at any time without incurring any obligation to make such modifications to instruments previously sold.

SPECIAL DESIGNS

In addition to standard models listed in this catalog ERA specializes in custom engineered power supplies designed to customer specifications and supplied in either prototype lots or production quantities.

Our quotations and comments covering your requirements gladly supplied without obligation on your part. Write us for a quotation on your special needs.

CONSULTATION SERVICE

Experience has shown that power supply applications are best made during the earliest phases of the electronic system or circuit design, rather than select a power supply after a system has been designed. To aid our customers in determining the optimum technical solutions in the most economical manner ERA maintains a consulting service which is available to all prospective customers. A request for this service should be made on company letterhead or through the nearest ERA area representative. Your inquiry is invited.

REPRESENTATIVES

Technical representatives are available throughout the U.S.A., Canada and other areas.

Our representative in your area is:



FACILITIES AND CAPABILITIES

ELECTRICAL DESIGN

ERA's pioneering experience in solid-state designs is put to use in the initial concept and design of the basic units. Our engineering staff is comprised of highly competent individuals who are acknowledged as experts in the field of semiconductor circuit designs.



INCOMING INSPECTION

ERA's Quality Control program starts with incoming inspection of components, many 100% checked, others random sampled or batch checked for conformity with specifications or MIL standards. Further in-process testing is done for suitability in specific equipments.



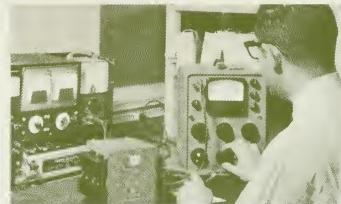
SUB-ASSEMBLY

Sub-assemblies are carefully checked and constructed. Solder joints and connections are individually inspected and sample testing is performed prior to incorporation in main assemblies.



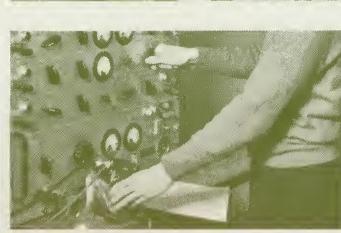
MAIN-ASSEMBLY

Sub-assemblies are carefully fitted and interconnected. Soldering and wire connections are 100% checked. In-process tests are performed for both electrical and mechanical conformity with standards.



FINAL TEST

All completed units undergo complete testing for conformance with specifications considerably more severe than the end specifications, thus providing a healthy margin for field conditions. Rejects are evaluated for design changes to insure complete reliability of all products delivered to customers. Each unit is tagged with performance data or checked for test standards.



FIELD EVALUATION

Field returns and test rejects are carefully evaluated in order to determine cause of rejects and corrective action to be taken. Data obtained is carefully evaluated for design, mechanical and component modifications, and there is continuous feedback to all groups, including Engineering, Production and Testing.



MECHANICAL DESIGN

Mechanical design at ERA is afforded the same importance as electrical design. Choice of materials, packaging and mechanical design is carefully evaluated so as to provide optimum performance against mechanical shock, vibration and operating conditions.

MAGNETIC COMPONENTS

ERA manufactures its own magnetic components, transformers, and coil assemblies. Facilities are available for encapsulation, varnishing and vacuum impregnation. In-plant manufacture of these components permits optimum coordination in design and rapid delivery.

IN-PROCESS INSPECTION

In-Process inspection procedures are utilized at strategic points in the production cycle. This insures proper fabrication of hidden sub-assemblies which cannot normally be processed during final inspection.

PRELIMINARY TEST

Preliminary completed assemblies are tested to rigid in-process performance specifications. Units not meeting quality or performance standards are put aside for evaluation and feedback to production and assembly.

HEAT RUNS, LIFE TESTING AND AGING

Accelerated life tests are run on a continuous sampling basis on each ERA product for batch acceptance or rejection. Critical components, particularly semiconductors, are aged and evaluated before they are used. Life tests are also performed on individual components for suitability under extreme conditions.

SHIPPING

All units are carefully inspected for mechanical and appearance aspects prior to packing. There is a continuous check for proper labeling, quantities, type numbers, prior to shipping. Substantial quantities of units are continually stocked for rapid customer service.



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